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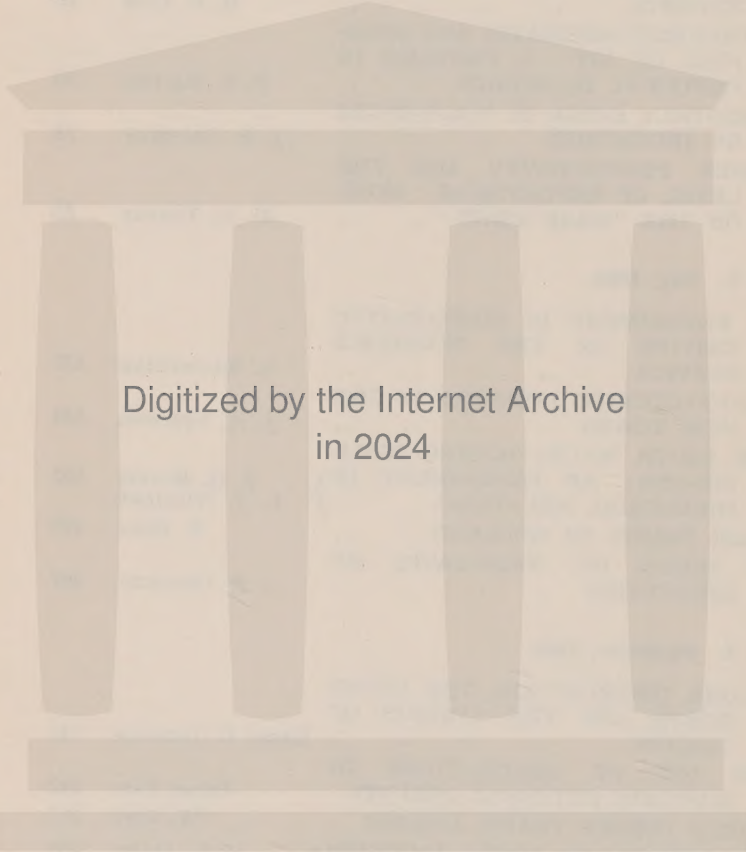
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# The Restrictive Practices Court on Competition and Price Restriction

In spite of the long established interest in the nature of the competitive process and the effects of price restriction, their theoretical analysis is still in the stage of development and change. The Restrictive Practices Court, comprising Judges and laymen chosen for their "knowledge of, or experience in, industry, commerce or public affairs" have recently examined in great detail a number of actual cases involving restrictions which affected prices, and it may be instructive to examine their views of the economics of competition and price restriction and to see whether they have made or are in a position to make contributions to these subjects. So far the opportunity to study their opinions is limited to the oral evidence and judgments in Court in four cases,<sup>1</sup> and any generalisations from this study are therefore provisional.

It will become obvious that the arguments put by respondents and the opinions of the Court have been greatly influenced by the investigation procedure itself, and therefore it will be useful first to state this quite briefly.

## THE COURT'S PROCEDURE

Agreements are heard separately and receive individual judgment on their merits; and where an agreement covers

<sup>1</sup>In the first year of the Court's operation, from October, 1958, the following cases were investigated: they include the four price agreements mentioned.

	<i>Type of Restriction</i>	<i>Judgment: Contrary or not Contrary to the public interest</i>
1. Chemists' Federation	.. Distribution	Contrary
2. Cotton Yarn Spinners' Association	.. (1) Minimum price	Contrary
	.. (2) Conditions of sale	Contrary
3. British Constructional Steelwork Association	.. Conditions of sale	(a)
4. Blanket Manufacturers' Association	.. (1) Minimum price	Contrary
	.. (2) Minimum quality	Not contrary
	.. (3) Conditions of sale	Contrary
5. Scottish Association of Master Bakers and Wholesale and Retail Bakers of Scotland	.. Recommended prices	Contrary
6. Water-tube Boilermakers' Price tendering		Not contrary
(a) Removed from the register under section 12 of the 1956 Act.		

more than one restriction, as in the *Blanket Manufacturers' Association* case, each is taken in turn. The Court does not make general statements about the desirability or otherwise of particular types of restriction. For example, in the *Yarn Spinners'* case the Court said they did not "intend to pass judgment for or against minimum price schemes in principle, either in the cotton trade or in any other."<sup>1</sup> In arriving at their verdict on any particular restriction the Court follows the procedure specified in section 21 of the 1956 Act. In it all restrictive agreements are assumed contrary to the public interest<sup>2</sup> unless, in a certain case, the Court is satisfied of the presence of one or more of seven circumstances (which have been called "gateways" and specify certain benefits), and is further satisfied that the restriction is not unreasonable having regard to the balance between those circumstances and any detriment to the public or to persons not parties to the agreement.<sup>3</sup> The balance, therefore, on which the Court decides a case is between benefit (to the public, or to the industry or its employees as laid down in the Act) and detriment to the public due to the restriction.

In their first case the Court made it clear that they must be fully satisfied about the presence of at least one of the seven circumstances *before* evaluating the detriments and balancing them against the benefits; if respondents fail on the first test that is the end of the matter.<sup>4</sup> Only the benefits due to those circumstances that fully satisfy the Court are balanced against detriments; other benefits that are not great enough to satisfy the requirements apparently count for nothing.

<sup>1</sup>L.R. 1 R.P. 182. The reference is to page 182 of the *Reports of Restrictive Practices Cases* published by *The Incorporated Council of Law Reporting for England and Wales*.

<sup>2</sup>The Registrar himself considers that this general presumption is of no more significance than in determining that the onus is on the parties to the agreement to prove their case. Paper to the *British Association*, York, September, 1959.

<sup>3</sup>For a fuller description see "The 1956 Restrictive Trade Practices Act: price agreements and the public interest," *Manchester School*, January, 1959.

<sup>4</sup>The agreement is declared "contary to the public interest," and is therefore void. So far enforcement has been by Court Order and no injunction has been issued.



In the second of the seven circumstances, about which all respondents have attempted to satisfy the Court, "that the removal of the restriction would deny to the public as purchasers, consumers or users of any goods other specific and substantial benefits or advantages enjoyed or likely to be enjoyed by them as such . . ." (section 21 (1) (b) of the Act), the Court will not be satisfied unless there is at least one benefit that is *simultaneously* specific and substantial: several specific but not substantial benefits cannot be aggregated to become collectively substantial. For a restriction to be "reasonable and fair" is clearly insufficient. And it has to be a benefit that would be *denied* if the restriction were removed; it is not enough to show that the restriction has contributed to some specific and substantial benefit.

Thus for a restriction to be acceptable there is a clear need to convince the Court that a strong case exists under at least one of the "gateways," and it may appear that arguments of some economic significance which support restrictions become valueless before the Court because of this procedure.

An idea of the Court's opinions is best obtained through grouping together and discussing some of the more important arguments with which trade associations attempted to justify their restrictions. In particular will be mentioned, under the important section 21 (1) (b) of the Act, the maintenance of surplus capacity, the encouragement of capital investment and research, the prevention of monopoly, price stability, and competition in quality; in addition to these five arguments the Court's views about the desirability of exports, and the likelihood of persistent unemployment will be discussed.

#### SURPLUS CAPACITY

The Court's observations concerning the maintenance of surplus capacity in an industry on the one hand illustrate the limitations that the investigating procedure places on the Court's discussion of the nature and desirability of particular forms of economic behaviour; and on the other hand show the importance of the value judgments they make about the mechanism of competition. Their views can be obtained from three judgments. In the first, the *Yarn Spinners'* case, the

Court distinguished the short run difficulties likely to be caused by fluctuations in activity from the problem of excess capacity due to the long run decline of the cotton industry.

They found that the minimum price scheme was based on the theory that in the spinning industry there are occasional short but violent recessions in which, the association claimed, some spinners would seek to maintain their output by selling below cost unless restrained by an agreement ; moreover, with full employment elsewhere in the economy mills dare not close down for fear of losing their labour force, which would accentuate price cutting. But the Court "were not satisfied that the fluctuations in activity in cotton spinning were so severe as to call for exceptional measures to create and maintain reserve capacity" ;<sup>1</sup> they agreed that adequate reserve capacity is desirable, but did not think that in this case concerted action was needed to obtain it. This contention failed, therefore, on a question of fact, the actual extent of the fluctuations in output in relation to some unspecified limit.

In the *Blankets* industry the Court found that the minimum price had been set at a very different level from that in the cotton yarn industry ; there prices seldom left the minimum, here prices never fell so low as to reach it. On the question of maintaining capacity in a recession the issue was, therefore, "whether there is likely to be a depression so deep that apart from the minimum price scheme there would be cut-throat competition and a virtual disruption of the industry (for the disappearance of some of the weaker members would not be a disadvantage)." <sup>2</sup> The evidence showed that even though recessions were deeper than before the war prices did not fall to the minimum, and the Court thought it unlikely that there would be a recession so severe as to bring the scheme into operation.

Finally, in the *Water-Tube Boilermakers'* judgment the Court, as in the *Yarn Spinners'* case, did not think that concerted action was necessary to preserve capacity in a recession—which "really meant the retention within the industry of key personnel"—but for a different reason. "All

<sup>1</sup>L.R. 1 R.P. 185.

<sup>2</sup>L.R. 1 R.P. 255.



the members are strong long-established boiler makers and there is no evidence to show they lack the resources to keep in business during the contemplated recession. The directors realise perfectly well that if they are to remain in the business, they must retain these personnel ; they will do so.”<sup>1</sup>

Here, then, are three very different reasons for the Court refusing to accept that a price restriction is necessary to maintain capacity in a *temporary* recession. They are all based on questions of fact, and the principle of whether and when it is desirable to maintain capacity by a restrictive agreement was only briefly discussed.

In the long run, however, because the Yarn Spinners' industry was contracting there was considerable excess capacity which, the Court considered, ought to be eliminated. Indeed, they held the view that the principal detriment of the restriction was the “waste of national resources in the form of excess capacity” resulting from the scheme, and that “it is in the public interest that labour and capital should be employed as productively as possible.”<sup>2</sup>

But in the same *Water-tube Boilermakers'* judgment the Court introduced another criterion in connection with the maintenance of capacity : the national interest. “In view of the expected long term expansion in demand, we are satisfied that it would not be in the national interest that any of these (six) member companies should be forced by economic pressure to give up boiler production. This, however, is not directly a relevant matter.”<sup>3</sup> The Court did, nevertheless, refer to it later and it played a crucial part in their judgment.

At least two aspects of this statement are of economic significance. First, it was not altogether clear why any other number of firms could not as well satisfy future demand as the present members plus the two or three non-member producers,<sup>4</sup> particularly when only four of the six were actually fabricators of boilers (the others were designers and contractors only). And it is peculiar that no alternatives were mentioned ;

<sup>1</sup>L.R. 1 R.P. 337.

<sup>2</sup>L.R. 1 R.P. 196.

<sup>3</sup>L.R. 1 R.P. 329.

<sup>4</sup>Who, in 1957 at any rate, obtained 45% of the orders from the principal buyer, the Central Electricity Generating Board.



for example, internal expansion was evidently ruled out, and it was assumed without discussion to be difficult to introduce capacity from outside. On the latter point there may, of course, be economic barriers that would exclude new entrants to the industry; evidence showed that John Brown Ltd., the engineers and contractors, and a non-member, was able to enter the industry without evident technical difficulty or delay, although they were assisted in overcoming any "economy of scale" barrier to entry through the assurance of a market from the British Electricity Authority. It is evident that the Court were regarding the future availability of supply from a very static viewpoint.

Second, the statement led to the conclusion that in this particular case there "is no room for the free play of competition" in which "the more efficient tenderers will gradually obtain a bigger share of the market and will drive the less efficient out of business"<sup>1</sup> because there are only six member firms and, in view of the expected increase in demand, it is not in the national interest that any of them should leave the industry. Evidently the Court believed that sentence quoted correctly described "the normal results of competition" and that the process would necessarily lead to a reduction in capacity. Yet as they had already stated (see above) and as they re-emphasised later "we are satisfied that with or without the scheme there will be no reduction of capacity in the industry." It is not immediately obvious how the Court reconciled these views. If capacity is not expected to fall in any case why is there no room for the free play of competition?

The Court's idea of the "normal" mechanism of competition, which seems rather oversimplified, may have been influenced by the presence of surplus capacity in the industry, a condition in which some capacity of the less efficient may well have been removed under free competition. The related question that would follow if it were accepted that this process was likely was not, however, specifically mentioned. One would want to know whether the "gradual and well ordered increase in demand" expected to take place in the middle and later 1960's would be satisfied more cheaply or more efficiently if

<sup>1</sup>L.R. 1 R.P. 341.

the capacity that would be reduced by free competition now had to be rebuilt later or if it were maintained in being by a restriction.

It is convenient to mention here the significance of the Court's view of the national interest. The Registrar's contention that "the scheme tends to prevent the concentration of business in the low cost boiler-makers and involves an uneconomical use of the nation's productive resources"<sup>1</sup> was not accepted as constituting a detriment to the public (and was not therefore balanced against benefits) for the reason that, according to a report of the judgment delivered orally in Court,<sup>2</sup> all six firms ought to be preserved in the national interest. However, the later "official" statement, instead of the direct reference to the national interest at this point, read "we are satisfied that with or without the scheme there will be no reduction of capacity in the industry"; this is not, of course, inconsistent with a concentration of business in the low cost producers. It is difficult to see why the Court did not regard the "uneconomical use of the nation's productive resources" as a detriment to the public as it had done in different circumstances in the *Yarn Spinners'* judgment. The effect of not so doing was to weaken the Registrar's case by striking out what might have been a major detriment *before* the crucial final balancing stage was reached. It was, in consequence, one of the two key value judgments on which the Court's acceptance of the restriction was based (the other related to exports, and will be discussed later).

#### INVESTMENT AND RESEARCH

Two short extracts will be sufficient to illustrate the views of the Court concerning the increased investment and research that was alleged to result from a price restriction. In the *Scottish Baker's* case the respondents were unable to substantiate a relationship that they claimed between a minimum price

<sup>1</sup>L.R. 1 R.P. 345.

<sup>2</sup>Transcript of the Shorthand Notes of the Association of Official Shorthand Writers Ltd., page 33 D. The later "official" judgment was published by the Incorporated Council of Law Reporting for England and Wales (at page 346). Since the first version, if it was correctly reported, was the opinion of the Court at the time of arriving at their judgment it seems reasonable to consider both views.

restriction and an increase in both research and the rate of technical progress. Indeed, the Court thought that price stabilisation "may prevent or retard the introduction of progressive methods in industry and thus operate positively against the interest of the consumer."<sup>1</sup> On the other hand in the *Yarn Spinners'* judgment the Court thought that "the existence of the "floor" which is created by the (minimum price) scheme, and the feeling of stability and confidence in the future which it gives, does make it likely that mills will spend money on modernisation and encourages them to do so,"<sup>2</sup> but because of the small and delayed effects on prices to the public the benefit was not considered to be "substantial." These not altogether consistent views raise two crucial economic questions: the first concerns the conditions under which innovation is likely to be maximized; and the second concerns the passing on of the benefits that result from increased investment and research to the public.

On the first point, it is important to observe the Court's acceptance that a minimum price restriction could lead to modernisation. Their problem was to assess the impact on the public. However, as on other issues, the wording of the Act ("specific and substantial benefit to the public") removed the need to discuss at any length the nature and importance of the general relationship between protection from price cutting and modernisation; the issue before the Court was simply whether the effect was substantial in this particular case.

Their judgment in the *Yarn Spinners'* case raised a difficult dilemma inherent in any attempt to justify a restriction for this purpose. It is that the conditions in which a price restriction might have a marked impact on research and investment do not exist unless the restriction is effective, but if it is effective then the public may simultaneously be prevented

<sup>1</sup>L.R. 1 R.P. 377.

<sup>2</sup>L.R. 1 R.P. 186. This view received some support in the judgment on the *Blanket Manufacturers' Association*. The Association claimed that the minimum price scheme gave confidence as to the future of the industry and tended to promote re-investment in the modernisation of plant and buildings. The Court accepted that there was greater confidence in the industry than before the war but thought that other reasons than the one given were the more important and that "modernisation is due only to a very small extent to the existence of this minimum price scheme seldom, if ever, operative."



or inhibited from receiving some of the consequent benefits. To base prices on the costs of the more efficient producers and to change them frequently with those costs, so that the public benefits without delay, would give the argument a greater chance of success. On the other hand a prerequisite for undertaking the expenditure and risks involved in developing a new product or a new process may be the ability to earn high margins for high amortisation in the early years of its sale or use, which the rapid adjustment of prices to costs would prevent. There is no easy solution to this dilemma.

### MONOPOLY

It was argued in two cases that the removal of the price restriction was likely to lead to monopoly, and in both judgments the Court also made observations about competition in oligopoly. In the *Scottish Baker's* case the Court considered whether the trend towards concentration in large firms, already proceeding under conditions of price restriction, would be appreciably hastened by the removal of the restriction. "The precise question that we have to consider is whether the respondents can show that, by virtue of the restrictions propounded by them, the disadvantages of monopolistic control in certain districts are checked so as to confer a specific and substantial advantage on the consumer."<sup>1</sup> The Court decided that concentration would not be hastened because, in the absence of the restriction, the five groups who already dominate the industry would be unlikely to engage in a price war. But they were not accepting the unlikelihood of a price war primarily because of the oligopolistic nature of the industry, which was argued by the respondents; "there is no basis for a general assumption that the lifting of price restrictions from an industry in which there is a large measure of group domination will not induce greater flexibility of price"<sup>2</sup> and the "extended opportunity for competition in price would sooner or later be embraced." There were natural factors in the industry that made for price stability, in particular the stability in demand and in costs.

<sup>1</sup>L.R. 1 R.P. 383.

<sup>2</sup>L.R. 1 R.P. 380.

In the *Yarn Spinners'* judgment the Court did not find that if the scheme were discontinued competition would lead to the elimination of so many firms that monopoly or near monopoly would result, and they considered that "even if the industry was reduced (from 225 firms) to the five large combines, who now control about 40 per cent. of it—it is not suggested, that the reduction would go as far as this—it would not necessarily diminish competition."<sup>1</sup> The interesting feature of this statement is not that the number of firms would be reduced (there was, as already noted, considerable excess capacity in the industry) but that the immense reduction "would not necessarily diminish competition."

The statement can be interpreted in two ways. On the one hand the Court may have been comparing the degree of competition between five firms and 225 without there being a restriction on prices in either case. Although the form of competition (in relation, for example, to price policy and advertising expenditure) may clearly be different between the combines alone and the combines surrounded by 220 other firms, it is much less easy to say whether competition would be more or less severe. Many economists would hold that in general competition would be less severe with the smaller number of firms, but that if the rate of innovation is greater with the fewer number competition may develop in the long run between the fast and the slow innovators. On the relative degrees of competition in the long run it seems that there can be no clear answer. The Court's view was, however, that in yarn spinning 225 firms unprotected by a price restriction was an unstable situation, and that some reduction in the number of firms was inevitable; it can at least be accepted that competition between the larger number of firms would be severe, with every indication that the severity would be greater than if there were fewer firms.

On the other hand—and this seems the more plausible interpretation—the Court may have been comparing competition between 225 firms regulated by a price restriction with 5 firms in the absence of that restriction, in which case their view that the reduction in the number of firms would not

<sup>1</sup>L.R. 1 R.P. 188.



necessarily diminish competition is justifiable : indeed it may go too far.

In both of these judgments the Court were clearly not being dogmatic about the extent of competition likely to result in oligopoly, and they thought competition could be as severe with a small as with a large number of firms ; their statements were, however, too brief to indicate their views on the nature of this competition. By contrast, it was assumed by the respondents that concentration was inherently undesirable, and that its prevention was therefore a public benefit.

#### PRICE STABILITY

The Court's opinion in the *Yarn Spinners'* judgment, re-affirmed in the *Scottish Bankers'* case, was that an element of price stability necessarily accompanies a price restriction ; they are two sides of the same medal. As a general rule price stabilisation as an *alternative* to a free market is not a benefit to the purchasing public, although there may be particular cases in which it might be ; moreover if "price stability could be obtained without the sacrifice of a free market, it would undoubtedly be a benefit." <sup>1</sup> This final statement, the precise meaning of which is not clear, may be no more than a value judgment about consumers' preferences for fixed prices, but it appears to have deeper implications. One point is worth amplifying : it concerns the general conditions under which price stability in a free market might be beneficial.

Clearly the Court was not concerned with the overall level of prices but with the prices of individual commodities or groups of commodities, and there is no economic reason why it is beneficial that these should remain stable ; indeed, a changing ratio of prices between commodities is a crucial part of the allocation mechanism. Taking, however, a broad view of "stability" which would allow individual prices to rise or fall, benefits may result : there are two cases to distinguish. The first is to compare a smoothed trend of price changes for a particular commodity with fluctuations about that trend (much as a seasonally adjusted trend might be compared with the original series). Stability in this case may certainly be an

<sup>1</sup>L.R. 1 R.P. 188.

advantage to some buyers (although not to those able to take advantage of fluctuations), to some producers if price fluctuations through inventory changes amplify swings in the demand for goods, and to the public if the consequential fluctuations in production raise real costs. But if steady or steadily changing prices are compared with fluctuating prices at *lower* average levels then it is not certain that net benefits result; the cost of stability may be too high. The Court's statement seems, therefore, to include too much.

Although the Court's views on the merits of price stability will affect future attempts to justify price restrictions, their economic significance seems limited.

#### QUALITY COMPETITION

It is frequently alleged that a price restriction, by channeling competition in the direction of quality and service rather than price, is a benefit to the public. In the cases heard so far, the Court's opinion was best stated in the *Yarn Spinners'* judgment:—

"If there were no restriction, the spinner would have a choice between giving better quality at the same price or the same quality at a lower price. Under the scheme he is free to pursue only one of these courses. All the removal of the restriction would do would be to give him back his freedom of choice. It may be that if one channel of competition is closed, the volume in the other will be increased. If this increase can be said to confer a benefit at all on the purchasing public, we think that it is negligible." <sup>1</sup>

In this and in other cases respondents also argued that quality deterioration was likely in a recession without the price restriction, but no further points of economic importance emerged in the judgments. In every case respondents failed to show either that deterioration was likely or that the price restriction would prevent it; the *Blankets* judgment may however be distinguished. In it the Court conceded that a restriction specifying only minimum quality standards was a "specific and substantial benefit" to the public that outweighed any detriments. The principal reason was that "defects

<sup>1</sup>L.R. 1 R.P. 188.

(resulting from the 'erosion of quality in a price war) would be unlikely to be discovered by the housewife on inspection of a new blanket." <sup>1</sup>

These issues raise the question of the importance of quality competition and the effect on it of a price restriction, but again the Court did not need to consider the matter in any detail since they were required only to apply the particular criteria to arrive at a conclusion.

So far in this paper the five subjects that have been discussed all arose out of the pleadings under section 21 (1) (b) of the Act (that the removal of the restriction would deny the public specific and substantial benefit). We now turn to consider how the Court regarded a restriction involving exports and one involving the possibility of unemployment.

#### EXPORTS

The Court has been most emphatic about the desirability of exports. In the *Yarn Spinners'* judgment the Court held "that anything which appreciably hinders or diminishes the export trade must be regarded as a public detriment," <sup>2</sup> and the *Water-Tube Boilermakers'* agreement was held to be not contrary to the public interest on the grounds that, in the words of the 1956 Act, its removal "would be likely to cause a reduction in the volume or earnings of the export business which is substantial" <sup>3</sup> . . . in relation to the whole business (including export business) of the said trade or industry" ; <sup>4</sup> this benefit was considered to outbalance detriments to the public due to the restriction.

To an economist these decisions are puzzling. There may be special economic circumstances in which the exports of particular industries should be protected, but they are very

<sup>1</sup>L.R. 1 R.P. 256.

<sup>2</sup>L.R. 1 R.P. 196.

<sup>3</sup>The Court did not specify in this or in any other case the size of "substantial," but since members' export orders from all areas covered by the agreement averaged £13 million annually between 1952 and 1958 inclusive, and orders from all areas averaged £15 million annually (equivalent to 0.005% of the value of visible exports from the United Kingdom), the largest possible decline may therefore be taken as £15 million and therefore that anything greater than this would probably be regarded as "substantial."

<sup>4</sup>1956 Act s. 21 (1) (f).

unusual.<sup>1</sup> In general and in the conditions of this country to-day there is no obvious economic justification for this section of the Act. But once Parliament has distinguished export promotion so strongly on the benefit side it is then consistent for the Court to regard any hindrance to exports as a detriment.

The *Water-Tube Boilermakers'* judgment is, however, worth discussing further. The earlier Monopolies Commission in a very similar case<sup>2</sup> had given mild approval to a certain degree of technical collaboration between firms and to the pooling of export information but had thought it "undesirable that manufacturers should discuss or give one another any indication of the prices they propose to quote or collaborate in any other way in matters of price and tendering."<sup>3</sup> The Court's view of collaboration was, however, that :

"If there were no Rule (about the agreed tendering procedure), a member tenders in the dark. It may be that he has made some mistake or that his estimators have got out of line and he may put in a tender which will just miss the order although he may be the contractor preferred by the customer. When, however the matter has been thoroughly thrashed out, first at a preliminary meeting and then at the ordinary tabling meeting, any interested member may be reasonably satisfied that his tender is strictly in line with the general level of prices and that his estimators have made no mistake . . ."<sup>4</sup>

The Court's view marks a pronounced shift in favour of collaboration where exports are concerned. (It is, incidentally, largely this value judgment of the benefits of consultation

<sup>1</sup>For example, if the social cost of some factors was less than their price then a case could be made for supporting above the free market level the exports made from those factors. Or a case could be developed by making a complicated series of assumptions that excluded all other possible ways of remedying persistent balance of payments deficits, or that resulted in the additional costs due to the restriction being less than would be incurred by the adoption of alternative policies.

<sup>2</sup>*Report on the Supply and Export of Electrical and Allied Machinery and Plant*, February, 1957. The principal arguments supporting the restrictions in relation to exports were almost identical to those put by the *Water-Tube Boilermakers Association*.

<sup>3</sup>*Op. cit.*, para. 790.

<sup>4</sup>L.R. 1 R.P. 343.



which, together with the "national interest" point already mentioned, seems to have been the basis of the Court's acceptance of the restriction).

And when the Court was considering the maintenance of offices and staff in overseas countries this anxiety not to damage the export trade seemed to lead them too far.

"We think that if the restriction were removed, there would be a likelihood at any rate of some of these offices being closed and extremely valuable local contacts lost, with consequential loss of orders. With the restriction in force, the members gain that extra confidence which makes it worth while to keep these expensive organisations overseas in being."<sup>1</sup>

The implication here is that an industry is apparently being encouraged to keep overseas offices open in conditions which would be uneconomic to them, for if the firms considered it profitable to keep these offices open they would surely do so in any case. By concentrating on the value of exports and not on the net returns, in fact, a lower balance of payments surplus (or a greater deficit) may result.

#### UNEMPLOYMENT

The *Yarn Spinners' Association* persuaded the Court that the removal of the minimum price restriction on cotton yarn would, through the removal of excess capacity, have "serious and persistent adverse effects on the general level of unemployment in an area, or in areas taken together, in which a substantial proportion of the trade or industry is situated."<sup>2</sup>

<sup>1</sup>L.R. 1 R.P. 343.

<sup>2</sup>1956 Act s. 21 (1) (e). As a matter of interest the minimum requirement for "serious" appeared to be a 1.6 percentage points increase in unemployment (from 4.3% to 5.9%) representing 5,500 persons. No period was specified for "persistent," but for a proportion of the trade to be "substantial" 38% of the insured workers was considered sufficient.

The Court's calculations contained two peculiarities. One is that in working out the number who would be "thrown out of work" if the restriction were removed, they took 10% of the *insured workers*, a number that includes those already unemployed, instead of the percentage of those actually at work. This has the effect of slightly exaggerating the expected increase in unemployment. The other is that their calculations involved an implicit assumption that the number of "temporarily stopped" who became "wholly unemployed" would be replaced by an identical number of "temporarily stopped" so that the total in that category remained unchanged.



It was not, however, entirely clear how the Court reconciled their view that, if the restriction were removed, prices would fall with the belief that the increase in unemployment would be *persistent* (admittedly they only arrived at this decision after much "doubt and hesitation"). Moreover, the Court did not consider the likelihood of effort being made by the Government under existing legislation, such as the *Distribution of Industry* Acts of 1945 and 1958, to reduce such unemployment. Of course, if it was thought that the Government would apply "local unemployment" policy successfully then this part of the Act would have become redundant.

#### DETRIMENTS TO THE PUBLIC

Only in two cases did the Court express their views; in others the need to consider them separately either did not arise, or, as in the *Blankets* case, the detrimental effects of the price restriction on the public were thought to be negligible.

The detriments put forward by the registrar and accepted by the Court were, in the *Yarn Spinners'* judgment, the maintenance of high prices for yarn which also had an appreciable effect on the price of cloth, the considerable loss in exports, and, most important, the waste of national resources principally in the form of excess capacity. In the *Water-Tube Boilermakers'* judgment "the real detriment . . . is that the purchasers of boilers may have to pay more than they otherwise would for their boilers." The other effect of the restriction alleged by the Registrar, that "the scheme prevents the concentration of business in the low cost boilermakers and involves an uneconomical use of the nation's productive resources," which was not accepted as a detriment, has already been discussed. It will be seen that although these detriments cover the more immediate income distribution and (except in the *Water-Tube Boilermakers'* case) resource allocation effects, they do not include secondary effects (for example, on the incomes of the suppliers of materials to the industry with the restriction and on the use of other resources caused by the price differential). Nor did the Court consider whether the longer term effects of price restrictions were detriments—such as the effects on technological change, and the possibility of biased research.

## CONCLUSIONS

It seems that on the one hand the Court was frequently engaged in establishing questions of fact (and of law, not here discussed) and with the logic of argument; that is, with the presence or absence of particular circumstances rather than with the principles governing their desirability. This is what the Act requires them to do. On the other hand it was inevitable that they would have to make many statements about economic behaviour, about the likely consequences of particular economic activities, and about which forms of behaviour were beneficial or detrimental to the public. A few of these statements seemed inconsistent; in part this may have been because the Court were not always the same body of persons, and differing views in such complex matters must be expected, and in part because the circumstances clearly differed widely between industries. It is, however, through these value judgments that an idea can be obtained of the extent and nature of the Court's views regarding competition and price restriction.

The framework within which the Court regarded economic behaviour was seldom completely static, but they did not consider at any length some of the more dynamic long run effects, such as the impact of a restriction on technological change. Sometimes it seemed that they regarded economic behaviour as being rather too straightforward; for example, that the normal competitive process is for the more efficient to drive out of business the less efficient: and sometimes that the objectives of economic policy were being oversimplified; for example, that the export market must not be jeopardised at any cost. On other issues they were cautious in the views they expressed; for example, about the extent and nature of competition in oligopoly. But it must not be forgotten that their task was to interpret and to apply the law, and if the Act reads "specific and substantial benefit to the public" then to specify the highly problematical long run effects on technology is probably impossible even though they may emerge subsequently as being the really important result of the removal of the restriction. Likewise, if the Act says "the volume or earnings of the export business" in a particular trade then

attention is diverted from the more important question of the overall balance of payments. Thus the field within which the Court can make statements about the outcome of economic events is limited to the consideration of a few particular questions, and the contributions that they might make to the study of competition and restriction is also limited; by the same token, the contribution which economists can make in their professional capacity to the Court's proceedings is also restricted.

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# Patents and Progress in Radio

The system of according protection to an inventor by means of a patent conferring a monopoly of the use of his invention for a limited period of time has been the subject of long debate. The debate has been conducted on two separate levels, the one based on ethical norms and the other on political or economic expediency. The ethical debate has concerned the concepts of the natural right of a man to the property in his ideas and discoveries and the equitable right of man to be rewarded in proportion to his contribution to society. At the level of expediency the debate has centred upon the effectiveness of patents in providing incentives to inventors to carry out their inventive work and the ultimate advantages to society from the publicity which patenting gives.

The arguments which have been used in the debate cannot be summarised here. The protagonists have, at present, succeeded in getting the better of the argument although it is not at all clear on which argument the victory has been founded. The probability is that the generally accepted desirability of progress has led to an acceptance of patents which, although not certainly conducive to progress, have not been proved to be positively inimical. The weakness of the whole debate is that it has been conducted mainly in general terms, that is, it has not attempted to separate the effects of different types of patents in different industrial circumstances. Examples have been freely quoted by both sides in order to underline their points, but such partial advocacy has not clarified the debate. Difficulties have also arisen because of a failure in the debate consistently to distinguish between the processes of invention and innovation.

The most fruitful line of approach towards the question of the effectiveness of patents appears to be to abandon general argumentation and to examine the effects of patents in individual industries. In this article an attempt is made to answer the question: "How far has the granting of patent monopolies affected, first, technical and, second, economic and social progress in radio?" In answering this question ethical

judgments are avoided ; the argument is entirely on the side of expediency. The argument will cover both the necessity of patents to induce inventive and innovatory activity and the effectiveness, or sufficiency, of patents in inducing such activity. A rigid dichotomy will be maintained between the inventive and the innovatory functions. It is recognised in practice that the point at which the work of the inventor is finished and the work of the innovator begins is not always clear ; it will be assumed that the point is determined by the date of the application for a patent.<sup>1</sup>

In radio there appear to have been three basic sources of invention, or types of inventor, namely, the genius in his attic, the research team and the worker on the job. There have been three basic types of invention, namely, revolutionary, evolutionary and minor. There have also been three types of patent, namely, master, major and patents of detail. Only two types of progress need to be distinguished, namely, technical and economic or social, there being no advantage for this analysis in separating economic and social progress.

There are fifty-four different ways in which these elements, inventor, invention, patent and progress can be grouped. It is believed that in the development of the radio industry only three of these groups or relations have been important and it is from an examination of these three groups that an answer will be sought to the proposed question. That other relations may have existed is admitted although the unconsidered relations are believed not to have been important. There is, however, no desire to adopt Procrustean methods in order to make an invention, innovation or patent fit into one of the selected groups.

<sup>1</sup>As used here, invention is the discovery of a new device or technique while innovation is a new application, whether of an old device to a new use, or of a new device to a new or an old use. Inventions are classed as revolutionary, evolutionary and minor. A revolutionary invention is one which breaks new paths and is largely, or entirely, independent of prior inventions. An evolutionary invention is one which is important but which is essentially rooted in prior inventions. A minor invention is an evolutionary type invention of a minor nature. The great majority of patented inventions in radio have been of the minor type.



### THE THREE RELATIONS

*First relation* : the genius in his attic makes a revolutionary invention, the subject of a master patent, which results in technical progress and in economic or social gain if developed and launched by an innovator ;

*Second relation* : the research team makes an evolutionary invention, the subject of a major patent, which results in technical progress which the financiers associated with the team intend to turn into economic progress or which the government or other body intends to turn into social progress, including the winning of wars ;

*Third relation* : the technician makes a minor invention, the subject of a patent of detail, which results in economic or social progress if adopted, often by his employer, or by the technician himself if self-employed.

These three relations will be considered in turn. For brevity the qualifying phrase " . . . in the radio industry . . . " will often be omitted from the argument ; this omission is not a claim for the general validity of the argument.

#### *First relation*

The genius in his attic has not appeared as an economic man in so far as *making* inventions is concerned ; he may have hoped to produce something which would result in his enrichment but the odds against him appear to have been too heavy for such a hope to be a real incentive to invention. It is difficult, therefore, to believe that the promise of a monopoly of his invention was necessary to induce him to produce his inventions. The prospect of recognition of his work and of a reward in the shape of civic or scientific honours, however, appears to have been a motive force of some importance ; recognition does not require a patent.

Sir Oliver Lodge and Guglielmo Marconi can both be regarded as geniuses in attics and both invented radio transmitting and receiving apparatus. Lodge invented his apparatus in 1889, without any apparent idea of commercial exploitation and he made no attempt to patent his discoveries until Marconi appeared with his apparatus. As an academic scientist Lodge frequently demonstrated his invention in order to secure

scientific recognition. Marconi worked independently at his home in Italy, largely out of curiosity and there is no evidence to suggest that the idea of making money preceded the invention. Although Marconi wasted no time in patenting his invention after he reached England in 1896, he was quite prepared to accept a modest payment from the Post Office for his patent and to see his invention used without further profit to himself. Initially, he refused a lucrative offer from the company promoters and it was only when the Treasury, on the advice of the Post Office, refused to make any funds available to purchase the patents that Marconi agreed to sell his invention for commercial exploitation. The Post Office advice was based on the mistaken belief that only they could develop the invention to the point of real usefulness. On the evidence, it is difficult to believe that either Lodge or Marconi were spurred by the thought of financial gain in making their inventions.

The invention of the thermionic valve was another revolutionary invention. Professor J. A. Fleming at University College, London, and Dr. Lee de Forest in America independently invented valves. Neither Fleming nor de Forest invented a valve in order to get a patent, although having invented valves they took out patents on their discoveries. De Forest let his British patent lapse by failing to pay the first renewal fee, hardly the action of a man pre-eminently concerned with economic gain. Fleming was a scientific adviser to the Marconi Company at the time and under the terms of his contract had to assign his patent to the Company without any apparent prospect of a further reward. The main motive forces in his inventive work appears to have been a desire to give "value for money" in connection with his retaining fee from the Marconi Company and to gain academic recognition.

A more difficult case is that of John Baird and television. Baird can be regarded as a genius who while recuperating from an illness designed a television system to keep himself from boredom, or he can be regarded as a man who, prevented by illness from working, deliberately set out to produce something which he thought would make money. Neither description is wholly right nor wholly wrong. However, his invention was not revolutionary. Once radio telephony had been developed

the production of radio picture transmission was no more than a complicated development of the basic techniques, that is, an evolutionary invention in the terminology used here. What Baird did, in fact, was to bring together radio telephony and the nineteenth-century invention of television by Paul Nipkow and by dogged perseverance in the face of extreme difficulties produce workable transmission and receiving apparatus.

The protection afforded by a master patent varies, but unless the inventor (or the innovator who has acquired the patent) has the funds to defend the patent in the Courts, the protection may be more apparent than real. Once a master patent has been upheld, then it can retard both technical and economic progress during its currency. These propositions are clearly illustrated by the important "four sevens" patent of 1900 (British Patent No. 7777), which practically controlled the use of radio until its expiry. In both England and America other workers infringed the patent whenever they tried to design improved apparatus and the greater financial strength of the Marconi Wireless Telegraph Co., which held the patent, enabled it to secure protection by means of threats of litigation. The consequence was a hindrance to the development of radio. In Germany, on the other hand, government support for the Telefunken system which infringed the patent made it too expensive and risky for Marconi's to attempt, by patent litigation, to prevent the infringement. Progress in radio in Germany was therefore freer and had gone further by 1914 than in either Britain or America.

The grant of a monopoly to the patentee in the case of a master patent means that only that person, or his licencees, can utilize the invention covered by the patent and so long as he goes through the motions of doing so the saving clause written into patent legislation, that if the owner of a patent does not make use of the invention covered anyone else can apply for a compulsory licence under the patent, cannot be invoked. In any case, the invocation of the saving clause requires that someone be prepared to incur the expense of applying for a compulsory licence, despite the risk that the patentee may be successful in showing cause why such a licence should not be granted. Compulsory licences have been sought

on few occasions and then only when the applicants were supported by trade associations which underwrote the financial risks.

The conclusion from the analysis of the first relation is that promises of patent monopolies were neither necessary nor sufficient incentives to the making of revolutionary inventions in radio.

Is this conclusion changed when the translation of the technical progress to economic progress is considered? The revolutionary inventions considered did not leave the inventors in a form suitable for immediate application, considerable development work being needed. The commercial risks of developing such inventions and translating them into innovations were great. It is possible, therefore, that the grant of a monopoly was a necessary condition to induce the innovators to do their work and to enable them to reap the rewards for their enterprise.

The Marconi Company, which had bought Marconi's inventions and hired Marconi as a technical expert, was the primary innovator in radio. It is quite clear that much of the development work undertaken and the financial risks shouldered were only borne because the Company could profit from the possession and maintenance of a monopoly. The significant fact, however, is that initially the Company attempted to secure a monopoly of the marine uses of radio by the ownership of all British coastal stations, with which ships not equipped with Marconi apparatus were not permitted to communicate. It was only after the Post Office took over the coast stations in 1909 and broke the monopoly which Marconi's were building up on the basis of non-intercommunication, that the Company "... resolved that it was time there should be an end to the infringements of the Company's patents."<sup>1</sup> In 1910 the Company turned to patent litigation as a matter of policy to maintain the monopoly. In other words, although the patent monopoly may have increased the willingness of the Company to take the risks of innovation, it was only regarded as a second best, resorted to when other attempts to secure a monopoly were defeated.

<sup>1</sup>*Electrical Review*, 14th July, 1911, p. 69.



It can be argued that development work on the valve in England would not have been possible without the monopoly which Marconi's, as the holders of the Fleming patent, enjoyed after de Forest allowed his British patent to lapse. It can equally be argued, however, that the incentive to develop the valve was not the security of a patent monopoly but the needs of the services which Marconi's were attempting to establish. Such attempts would certainly have failed if the Company had been unable to match the service of its competitors ; the valve was required for the trans-Atlantic radio service which competed directly with the cables. Because of the patent position, no other company could use valves for marine radio equipment and despite their work in developing valves, Marconi's did not use them in marine installations at the time.

It is suggested that patents may have been more effective in stimulating progress if the innovator could have been protected by the grant of a patent monopoly with a time basis determined by reference to the date of the innovation. In fact, in the seventeenth- and eighteenth-centuries it was common for innovators, not inventors, to be protected. Only in Britain at the time was patent protection extended solely to the "true and first inventor," and it was not until the end of the eighteenth-century that this general limitation was adopted in other countries. It can be argued, however, that the absence of any kind of patent monopoly would not have hindered the development of the revolutionary inventions because either the possibility of obtaining a monopoly by another means or the over-riding needs of competition were present.

On the question of the time basis of patents, it is true that patents were extended when the development period was so long that no opportunity to profit was available during the life of the patent, or where other factors prevented a start on the development work for some years ; the original Lodge patent was extended for seven years from 1911 for this reason. On the other hand, the invention of heterodyne reception in 1902 was unavailing because a self-oscillating valve did not exist. In the 1920's when heterodyne reception became possible the patent had expired and so could not be extended. The impossibility of obtaining a monopoly may have been the



reason why no one was willing to develop heterodyne reception as an innovation until the overcrowding of wave-lengths made such reception necessary for satisfactory broadcast receivers. If this was the case the delay involved might have been avoided if a patent related to the date of an innovation could have been secured.

It is concluded, therefore, that the promise or the prospect of a monopoly may sometimes have been a necessary condition in inducing innovators to shoulder the risks involved. A patent is one way in which such a monopoly has been secured but other factors have been important and it cannot be maintained that the rate of innovation would necessarily have been slower if patents had not existed. The mere offer of a monopoly has not appeared to be a sufficient condition for innovation.

### *Second relation*

In a rapidly developing scientific industry, such as radio, it has always been a commercial necessity for any enterprise which hoped to establish and maintain a position of importance within the industry to undertake research. The research teams employed for the purpose have been economically motivated, that is, they were engaged and financed in the belief that they would produce something worthwhile on which innovations could be based. It must be observed, however, that what is called a research team here does not correspond with what some enterprises have called research teams. Teams whose functions have been no more than "trouble shooting," making irrelevant but advertisable changes in the product or copying other producer's patented and unpatented products have also existed.

Research teams have usually been employed to make evolutionary inventions. No company has normally employed people to undertake lines of investigation likely to result in the obsolescence of all its capital equipment. The predominant pattern is seen in an extreme form in the development of Baird television. The research team was kept working on mechanical methods of television, despite the clear and realised limitations of the methods, because the companies formed to exploit the apparatus hoped that by concentrating on such methods they

would reach a satisfactory standard and secure contracts to build and operate television stations for the B.B.C. before electronic methods were available. Only when the race was obviously lost did the companies resign themselves to the prospect of scrapping their investments in mechanical methods and turn to electronic methods by acquiring the British rights to the system invented by Philo Farnsworth in America. When television started in Britain they could only offer a highly developed, but basically unsatisfactory, mechanical system and an under-developed electronic system.

Other patterns have also been present, however. Enterprises with only a small part of their total capital in particular fields in which they had relatively small market shares have not hesitated to seek inventions which would render that equipment obsolete if they could thereby secure increased shares in the relevant markets. Marconi's in developing their trans-Atlantic transmissions were in this position; in order to secure a larger share of the market from the cable companies they were prepared continuously to scrap existing equipment if better became available. Inventions have been sought in other fields than those in which the enterprises were interested and research teams have been employed for such purposes. Metropolitan-Vickers, mainly a producer of heavy electrical equipment, employed a research team to develop radio broadcast transmission and reception equipment.

The finest example of these alternative patterns is the development of the short-wave beam methods of point-to-point communication by the Marconi Company which rendered much of their long-wave equipment obsolete. The team deliberately produced a near-revolutionary invention despite the vested interest of the Company in the retention of the older methods. The development of the beam was undertaken in order to enable the Company to secure an entry to the field of point-to-point communication which was closed to it at the time, a field in which the potential prizes of success far outweighed the loss of *part* of its prior investment. A further example occurred in the case of television. Both Marconi's and E.M.I. had mechanical methods available. Both apparently infringed the Baird patents so that entry to the field of

television could only certainly be secured if a non-mechanical system could be developed. The prospect of the prize of entry was sufficient to induce the companies to scrap their minor investments in mechanical methods.

In each of the examples cited, the desire to secure a card of entry was the dominant factor. No revolutionary inventions were produced as a result of the research undertaken, but it is clear that had the teams produced revolutionary inventions the companies concerned would not have shrunk from the consequences, provided always that such inventions provided the basis for an entrance otherwise denied. The unwillingness of enterprises to embrace inventions which would damage their existing investments without necessarily providing an entrance to a new field was well illustrated by the refusal of the cable companies to interest themselves in radio except in the negative sense of trying to prevent its entry to their preserves.

Collective application in radio has been pre-eminently directed towards discovering new products within a defined field, new qualities of known products, new processes for making existing qualities of known products or developmental improvements to other inventions. Such work has been of the utmost importance for both technical and economic progress in the industry.

Perhaps the clearest of the many examples of collective application producing evolutionary inventions is seen in the invention of electronic methods of television at the laboratories of E.M.I. The research team has access to the work of V. K. Zworykin at the R.C.A. laboratories in America. Zworykin had been following up the clues given by A. A. Campbell-Swinton in his important article in *Nature* in 1908 and the work which had been done in the development of the electronic valve, particularly that which had led to "hard" valves being produced. At the E.M.I. laboratory the work was taken further with the co-operation of Marconi's who had experience in designing transmitting and receiving equipment for sound. Would this work have taken place if patents had not been available for the inventions made? The answer is yes. The prize which was sought was the competitive advantage of being first in the field, of being able to secure contracts for

the construction of B.B.C. stations. In fact, in the manufacture of receiving sets, any radio manufacturer could secure a licence under the Marconi-E.M.I. patents on terms which were not at all onerous. E.M.I. was not the only enterprise seeking the same prize. A. C. Cossor, Ltd. also developed an electronic television system in an attempt to capture the prize. Because they used a "soft" tube they were unable to offer as high a standard as even the unsatisfactory Baird system.

The development of the thermionic valve is another example of team work producing evolutionary inventions. Much of the development occurred during two wars under the stimulus of defence requirements. That which did not occur in this way was largely the result of attempts to overcome difficulties experienced in the use of valves and in operating radio services; it was the need, usually a competitive need, to innovate which led to the valve development work occurring. The major valve companies have long operated patent-sharing arrangements because they do not regard the possession of a patent monopoly as important.

The development of the beam was the result of collective application based on a host of previous advances, advances in aerial design, in transmission systems, in the production of valves capable of handling the high frequencies used and general scientific advances in the study of the stratosphere. In this work there was little to patent, the incentive to undertake the work being provided by the previous refusals of the Post Office to grant licences to Marconi's to operate an Imperial radio network.<sup>1</sup> Entrance could be made only as an innovation on the basis of something technically new.

In the use of radio for marine purposes the most rapid technical progress and the greatest service improvements occurred when competitive pressures were strongest. After the first World War the entry of the Radio Communication Company and the re-entry of Siemens to the Marconi near-monopoly of British marine radio gave rise to a period of rapid invention and innovation. The question of patents was largely irrelevant

<sup>1</sup>The full story of Marconi's attempts to gain licences for an Imperial service is told in my book, "The Economic Development of Radio," pp. 84-125.



to progress ; the only use made of patents was aggressive in an attempt to break the new entrant. After the second World War a similar picture of technical advance, mainly improvements in radar for ships, and rapid innovation forced by the pressure of new competition also occurred.

Patents have usually been taken on the developments of research teams, but the reasons have been the possibility of earning royalties or to please the research workers by publicly acknowledging their work rather than to protect the processes or to secure a monopoly. It is possible that fewer research teams would have been employed if no royalties could have been obtained from their inventions to offset part of the cost of the team ; there is no evidence one way or the other. Inventions related to processes, however, are frequently not patented because patenting enables competitors to see the process achieved, to improve it, or to use it unimproved without seeking a licence and so undermining the competitive advantage of the patentee. This has been important in connection with machinery for valve making.

There is a perverse effect which may be noted. The direct effect of patents is assumed to be the relation between the grant or offer of a monopoly and the willingness to invent and innovate. The perverse effect is the relation between existing patents and the willingness to make competitive inventions and innovations. Whether or not a perverse effect arises depends largely on the readiness of the patentee to grant manufacturing or operating licences under his patent and the royalty terms demanded. When the British Broadcasting Company was formed, the Post-Master General insisted that all patents should be pooled and be available on equal terms to all firms. As a result, it was not worth anyone's while to develop substitutes for the inventions covered by the patents and most set-makers almost up to the second World War were simply copiers, making only minor innovations as selling points. Only the copying from the United States where patent licensing arrangements were more restrictive, prevented complete stagnation. Where licences were withheld or offered only on onerous terms, then the perverse effect became important and inventive activity was stimulated to seek ways

of avoiding the patent. This was seen in the successful attempt made by the Radio Communication Company to invent a valve, the Negatron, which did not infringe the Franklin reaction patent of 1913 but achieved similar results.

It was possible to develop the Negatron as an alternative because the reaction patent was only a major patent, not a master patent. The "four sevens" patent, on the other hand, under which licences were also withheld did not produce a perverse effect. Although other inventors, for example, Maskelyne, Balsillie, de Forest, tried to produce equipment which did not infringe the Marconi patent, they were unsuccessful and the real fruits of their inventions, in the shape of improvements to Marconi's apparatus, were not utilised. Television provided a slightly different pattern. Baird's patents were treated as master patents<sup>1</sup> so far as *mechanical* transmission methods were concerned and the alacrity with which he issued writs of infringement and his refusal to grant licences to other people to use these patents was one factor which led inventors to seek alternative methods. The Baird patents, in fact, were not sufficiently far-reaching to stifle further activity in television.

Although instances of progress through the operation of the perverse effect occurred, it is doubtful whether their frequency, importance or certainty has been such as to justify the existence of patent monopolies. In other respects, patenting seems to have been neither a necessary nor a sufficient condition for progress under the second relationship. The cynical observation of patent experts, that a patent is valueless until it has been upheld in Court, applies particularly to patents on evolutionary inventions; reliance on patent protection in such cases is uncertain and potentially costly to maintain. This point was discovered by a number of radio firms.

### *Third relation*

The analysis of the third relation follows closely that of the second and need not be repeated. Minor inventions have

<sup>1</sup>They were not tested in Court. Because of the basis of prior knowledge it is possible that they would not have been considered as master patents if tested.

concerned processes and detailed improvements to products. Although the act of patenting made the processes public knowledge and so may have encouraged their wider adoption, other producers could always determine the nature of such minor advances by examining a product containing the advance. A similar feature could then be incorporated into their own product with little delay. The first maker of a portable television set realised this and once his set was produced his main efforts were directed to preventing his rivals seeing it before he was in a position to offer distributors adequate stocks. He was fully aware that the patents covering the equipment were not of sufficient importance to prevent copying.

A minor invention in one field can have far-reaching effects in other fields, but its application in those other fields may not be obvious unless a patent is taken and is available for all to see. This could have been the case with the oil distillate discovered in one department of Metropolitan-Vickers which provided the solution to the problem of constructing a 500 kilowatt demountable valve for transmission purposes. In fact, the valve was made by another department of Metropolitan-Vickers and so no question of patenting and publicity existed. The structural accident of Metropolitan-Vickers being a highly diversified undertaking at the time must not be allowed to obscure the point.

The nature of minor inventions is such that patents of detail can easily be circumvented. Their royalty earning potential has been low and the prospect of a patent monopoly has consequently been little incentive to invention. Inventors have usually been prepared to part with their patents for a modest fee if a buyer could be found. Only the ability to group such patents in a general licence with one or two important patents which a manufacturer must use has given them any earning value. If such grouping is possible, producers can then be charged royalties on even worthless patents which they must pay in order to secure the licence to use the more important patents: the patent licences under which broadcast receiving sets were made in the 1920's are an excellent example. The sole advantage which patenting appears to have conferred in

the case of the third relation is publicity and even here the very multitude of such patents makes it likely that useful patents of detail remained unnoticed in a flood of worthless patents. There is no evidence to suggest that the existence of a patent system increased the number of minor inventions or the willingness of innovators to make use of those inventions.

#### CONCLUSION

The conclusion is that in the development of radio the grant of patent monopolies may have had value in securing innovations based on revolutionary inventions, although this is arguable, but, save for the perverse effect in the case of evolutionary inventions, has had little effect on technical progress as a whole or on innovation in general. The favourable effect, if it is to operate fully, requires that the patent be timed in relation to the innovation, not to the invention as is customary.<sup>1</sup> For encouraging innovation patents related to inventions have been blunt and uncertain instruments. The answer to the question, "How far has the granting of patent monopolies affected, first, technical and, second, economic and social, progress in radio?" is that the effect has been relatively slight. Even the one possible favourable effect discovered is uncertain because it was monopoly, not patent monopoly, which was sought.

If there has been little positive good in the patent system, has there been any positive harm?

Patents have been used as weapons of offence and a relatively poor patent backed up by large financial resources has been used to intimidate the small owner of a better patent who could not afford the risk of losing a patent suit: a suit taken against the Mullard Radio Valve Co. was of this nature and only strong support from unexpected quarters prevented Mullard's from being forced out of business at the time.<sup>2</sup>

Patent litigation and the threats of patent litigation have been used to divert the energies and upset the plans of a competitor, to leave him uncertain whether to carry on and

<sup>1</sup>The difficulties in the way of relating a patent to an innovation are fully realised. If the ideal with only a limited usefulness cannot be achieved, is something less than the ideal worth preserving at all?

<sup>2</sup>This occurred before Mullards became associated with N. V. Philips.



risk losing the suit and be ruined by legal charges and an *ex post* bill for royalties on all infringing production, to abandon his position altogether, to allow himself to be swallowed by the plaintiff in the suit, or to suspend production of the lines in which infringement was alleged and allow his competitors a breathing space in which to establish themselves.

With two rivals of equal size and financial strength, these considerations have been unimportant ; in fact, in such cases combination, not litigation, has been the most usual outcome. This occurred when the Marconi<sup>1</sup> and S.T.C. pools holding patents on the making of broadcast receiving sets and issuing separate licences agreed to amalgamate in 1931. In 1933 in a similar situation in which Hazelpat challenged the pool, amalgamation again occurred, although only after some shadow boxing and threatening noises. The situation recurred when Mullards and N. V. Philips issued a rival patent licence and this time action was taken by the old-established pool which had been strengthened by the prior amalgamations. The fight was protracted and taken to the House of Lords with victory for the Mullard-Philips group, which was absorbed into the established pool in 1939. The squabbles among the giants of the industry over patents during the 1930's made life difficult for the ordinary set-maker and the necessity to choose between rival licences prevented him from constructing the best set which could have been built on the basis of existing knowledge; one consequence was a loss of export markets.

Where the litigants have not been of equal size, the plaintiff has usually been larger than the defendant, who has often been a new entrant to the industry whose attempts to secure entry have been challenged rather than the quality of his patents. Here patent suits could have been highly damaging. Only one such suit was fought out and the intervention of powerful allies on the side of the weak defendant prevented the harmful effects from being realised. Another case was withdrawn when the plaintiff realised that the defendant would be helped. In another instance the case was stopped and settled out of

<sup>1</sup>The licence issued by the patent pool has always been referred to in the industry as the Marconi Licence, although Marconi's ceased to have any interest in the pool in 1929.

Court when it was realised that the patent position of the defendant was, in fact, strong enough to win the case. What is not known is the number of small firms which were intimidated by the threats of litigation; there is a strong suspicion that the number was considerable in the early days of the industry.

Patent suits have often been protracted, acrimonious and expensive. The question of priority in the invention of the thermionic valve was not settled finally until 1943, 39 years after Fleming's invention. The acrimony developed between Fleming<sup>1</sup> and de Forest during the litigation prevented the adoption of the common-sense solution of using the two discoveries in harness. Instead, the development of the valve was delayed, the inventors refused to speak to each other and the financial rewards from the exploitation of the patents were reduced below the level which co-operation would have given. Such an outcome between Lodge and Marconi was only prevented by the activities of Sir William Preece acting as a go-between and the eleventh-hour conversion of both Lodge and Marconi to the view that litigation would be jointly less profitable than co-operation and a united front against all others. Funds which could have been better devoted to the development of improved equipment were swallowed in legal costs. The cost of an unsuccessful suit in the 1920's were one cause of the financial weakness which led the Marconi Company to accept an amalgamation, unfavourable to itself, with the cable companies in 1929.

The negotiations leading to the formation of the British Broadcasting Company provide a further example of the difficulties which rival patent positions can cause. The Post Office having rejected the idea of competitive broadcasting, the six largest British companies with interests in radio were attempting to reach agreement on the establishment of a

<sup>1</sup>Fleming was not the holder of his own patent. In the litigation, Marconi's, the patent holders, were seeking economic prizes, but Fleming was more concerned with recognition. Such recognition could more readily have been achieved if the real issue had been one of priority of invention, not validity of patent. In fact, the Fleming patent was held in 1943 to have been always invalid because it contained an improper claim not remedied by a timely disclosure. This technical fault in the patent does not lessen the value of Fleming's work.

single broadcasting body. The companies soon found themselves ranged in two rival groups of three companies. One group insisted that the patents held by the three companies in the group were such that only they could build the stations ; the companies of the second group admitted the ability of the one group to build the stations, but claimed that they also were in a position to do so without infringing any patents held by the other companies. Protracted negotiations led to a deadlock in which the Post-Master General reluctantly agreed to allow two companies to be formed, despite the objections to competition which were seen at the time, the certainty that an unsettling patent war would develop and the fact that neither of the two groups really wanted to see two companies established. The deadlock was broken, it has been alleged, only when one of the groups hastily printed overnight all the necessary documents for the formation of a company. Their bluff, for bluff it was, was not called and the intransigent group abandoned its position and agreed to pool all patents. Whether the existing pattern of broadcasting in Britain, which is a logical development of that agreed in 1922, is desirable or not, there is no doubt that two competing companies fighting a patent suit immediately after their establishment would have been undesirable.

The history of radio lends little support to the expediency arguments of the protagonists of a patent system which accords protection to inventors. In fact, a number of clear examples exist of actual and potential harm from the patent system. As it is always easier to identify damage than benefit, the final step of deciding whether, on the evidence available, the gains outweigh the losses or *vice versa*, is left to the reader.

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# Lancashire and Latin-America

## 50/60 Years Ago

“Me hace el favor : pongame ocho fardos de Carmelitas y ocho de Panchos, como ántes.”

It was as easy as that. Our old client, Don Lisandro, was asking me to book a repeat order of 8 bales each of maroon-ground and two-blue prints.

Fifty or sixty years ago Manchester's textile trade with Latin-America was both vastly more important than it is to-day and very different in its conduct. We seemed to have a prescriptive right to this so-called shipping business ; and I have been thinking that it may be useful and interesting to have some account of it on record—its size and value, how orders were booked, for what, by whom, from whom, when, where and on what terms.

Since my 60 years' experience has been mainly with the two northern South American republics of Colombia and Venezuela, my account is of them in particular, but the broad pattern was the same for all these markets of Latin-America.

Let me now describe from my own experience a typical Colombian journey, which shows how we used to sell our goods. I joined forces with an English friend, a resident agent at Medellin; whilst I was travelling for my own firm only, my friend had Bradford, Nottingham, Dundee and Paris agencies. From Medellin we set off by coach at the crack of dawn, equipped for the occasion with saddlebags, riding breeches, spurs, ruana, poncho and Panama hats. At Envigado, after a few hours' drive, we met our peon, Jesús by name, with two mules and a spare one for baggage, bedding, etc. Later we overtook our convoy of 15 mules for our thirty sample cases of 1 cwt., the standard load for mules. It took us more than a week to reach Manizales. In these early days English travellers with samples were few and far between and their arrival was quite an event. There were few importing firms and there was really little competition. It might be said that each importer had his pet



connections and stuck to them, largely on account of credit—six months in open account, then not easy to get. What a customer bought was limited rather by what credit his Manchester firm allowed than by his appetite.

The first few days were spent in formal courtesy calls. Although I did not wear a top hat, several of our chief customers did, which seemed rather incongruous in a place that you could only reach on mule-back. The preliminaries over, we got an enormous empty room, put up trestle tables covered with the blankets we had used for packing and laid out our various sample collections. The next four weeks were spent in collecting orders and writing them out, everything in duplicate, the second copy for despatch a fortnight later in case the first got lost, which it sometimes did.

There was great keenness to have first innings with each sample collection. Prices were relatively unimportant; bargaining was unknown; colours, assortments, etc. were usually left to us, at any rate for cotton goods. “*Vds saben mejor*” (you know best). To cable orders was almost unheard of. They were sent by mail and took anything from six weeks to three months to arrive, but as the goods also took as long, the whole thing was pretty leisurely. Nevertheless, when the time came for the actual shipment the pace in the shipper’s office was anything but leisurely. In those early days, with one direct steamer every three or four months, and of course no air-mail, it was essential to dispatch the complete shipping documents—commercial invoices (hand-written, no typewriters then), consular invoices, bills-of-lading—by the steamer carrying the goods. But the commercial invoice could not be completed without the freight and shipping charges account, the consular invoice could not be completed without the commercial invoice and required the signature of the consul whose attendance was often both brief and irregular, while the Steamship Company could not sign the bills-of-lading without the consular invoice. In consequence there was usually an all-night session to get all the documents—not just one set but perhaps fifty or more—away in time.

From Manizales we proceeded to Cali, another complicated journey, two days by mule down to the Cauca River, thence by river steamer four days upstream to Cali. By comparison the Magdalena boats were luxury liners. Apart from our sample trunks, the principal cargo was wood for the boilers, cockroaches, ants, mosquitoes, etc. I will not attempt to describe the food !

About 25 years later, journeys were to collect money rather than to sell, but there was still not much competition and our customers still rode out for hours to meet us with fresh mules or horses, and it was always hard to decide whose animal to take without giving offence. There was still little discussion of prices or assortments and little cabling ; but in the thirties conditions began to change—more travellers came out and it was assumed that the buyer would get the credit that he needed. Things were gradually getting difficult. As Manchester trade with the East fell off, more and more firms turned to South America. Customers began to bargain and make counter-offers, orders had to be cabled, customers made their own assortments and got more and more exacting, and the importers, instead of coming out to meet us as before, were so overrun with travellers that the reception was rather “another of those . . . Manchester travellers!” Of course, there were exceptions and many old friendly relations remained unchanged.

#### NATURE OF THE GOODS

At the beginning of the century, to mention cotton piece goods in South America meant “Manchester” and to mention South America in Manchester meant “cotton piece goods.” Of course, neither limitation would have been strictly accurate. Long before 1900 there was a small production of cotton piece goods, hand-spun, hand-woven, and dyed (yarn-dyed rather than piece dyed) in Peru, Mexico and Guatemala, and 100 years ago several countries, notably Brazil, Mexico and Argentina, had factories equipped with spindles from Dobson & Barlow, Howard & Bullough, Platt Brothers, etc., looms from Butterworth & Dickinson, Robert Hall, Hattersley, etc., finishing machinery from Mather & Platt. Some of this

machinery is still running to-day. The same is true of Beyer, Peacock locomotives and flour-milling machinery from Henry Simon ; also Jewsbury & Brown's "Kola," the forerunner of the present Coco Cola, and probably other Lancashire products.

But at that time nearly all cotton yarn and piece-goods came from Lancashire ; the Latin-American merchants had not to decide where to buy but merely from whom. Competition was thus almost entirely between the various Manchester shippers. This had its advantages but also its drawbacks, and I am not sure that the drawbacks did not outweigh, or have not in the final reckoning outweighed, the advantages. By restricting profits competition no doubt made goods cheaper so that more of them were sold, but on the other hand it led to greater diversity, with each shipper anxious to offer something different—G. W. Armitage called us "particularists"—which discouraged standardisation with its resultant economies. This was all very well when we had the field to ourselves, with our customers "particularists" too, but gradually, as the U.S.A. exporters came along with their standard printed lines—it was *not* as was often asserted their end-of-season goods and "seconds" that defeated us—we lost one market after another, especially in narrow prints, denims and grey shirtings. Apart from a natural reluctance to disturb their old-established connections and personal relations with their Manchester friends, for two reasons the importing merchants were not keen on this American business. Firstly because of the terms of payment—cash against documents. The New York drafts had to be promptly met. No nonsense about six months' credit, and not always punctual at that. (Indeed we Manchester shippers have all had the privilege of waiting for our money, "because, you see, we have to take up that documentary draft from New York." To-day we enjoy the same privilege of waiting whilst our customers pay under Letter of Credit or Cash against documents for goods from Japan, India, Hungary, etc.). Secondly, because with the same goods bearing the same brands—we might have sold identical goods to half-a-dozen importers in one town but they were made up and labelled differently—in their neighbours' store, their profits were cut ; on the other hand, though, the goods sold quickly and easily

and for prompter payment than these importers could demand for their Manchester goods. Putting it differently, "give the customer what he wants" was all right when we had a monopoly, but proved to be a boomerang when we had to face competition, first from the U.S.A. and later from Japan. Although in the early days no doubt you could not pick and choose your designs and colours when you bought American prints but had to take ready-made assortments, yet these were so many and varied that it did not much matter ; and later you could pick and choose. We used to hear complaints that for a specially chosen design or colour a buyer must order at least 360 yards to a way and as many ways as colours in a design, whereas in the U.S.A. he could have 50 yards of whatever he wanted. Our reply was "yes, from their limited—large but still limited—range you can, but only in that particular quality, width and finish. From us you can have any design in any quality, width and finish" and we might have added "go to a print-works and you will marvel how they can turn out these goods, even with 10 times that minimum," which is certainly more like the calico printers' minimum to-day.

Compared with to-day the range of cloths was distinctly limited ; not only were there no synthetic or man-made fibres ; there were no poplins, taffetas, limbrics, though of course there were cloths of plain and fancy weave—drills, jeans, satins, mattings, as well as dobbies and jacquards. Most of our customers' ranges were similar—grey and chiefly of white calicoes, up to 36" for ordinary purposes and double width or more for sheetings, printed and dyed calico for dresses, drills for workmen's shirts and trousers, trouserings, denims and chambrays for heavier wear, etc. Often—too often—a fresh quality was introduced by cutting one's neighbours' quality, taking out a thread or two, a count or two of yarn, an inch maybe ; the initiative came sometimes from this side, sometimes from that, and it was almost invariably designed to reduce the price, not to improve the quality, though sometimes in a falling market to fit a selling price (*see below*) one would supply a better quality rather than reduce a price. To quote from G. W. Armitage's "*Market Report in Rhyme*"



"The makers of printers in Burnley  
 Sold 30's and bought 34's.  
 Now why do you snigger? The size of a figure  
 Is nothing, it's sizing that scores.  
 The makers of printers in Cheshire  
 Sold 30's and bought 28's,  
 And the angels above them who ardently love them  
 Lit haloes that glowed on their pates."

so don't condemn us all. Of course, it must not be thought that these cuts in quality were made surreptitiously; they were made by mutual agreement and our reputation for fair dealing, for delivering what we had undertaken to deliver, to which I refer later, did not suffer. We are justly proud of the high quality of our goods, yet it is a fallacy to suppose that all our textiles were of high quality. My firm has sold 18" prints at 1d. a yard—undeniably pretty poor stuff, but this is what matters: we delivered what we had contracted to deliver.

#### METHODS OF ORDERING

It might be said that orders for cotton goods for Latin-America were placed in four ways:

1. By Manchester shippers with their Headquarters here and their own houses in Latin-America or by Latin-American houses with their own buying offices in Manchester.
2. By direct negotiation between the shippers and their Latin-American customers
  - (a) by correspondence
  - (b) through the shippers' resident agent in the buyers' city
  - (c) through the shippers' traveller.
3. (a) by the customers' head office or buying office in Europe (Hamburg, Paris, Zurich, etc. and in a few cases, London or Liverpool).
- (b) by the customers on their personal visits, often annual, or even bi-annual in the case of season markets such as Argentina, Chile and Uruguay. Although such orders were negotiated on this side, their despatch, invoicing and payment were usually arranged with the Latin-American house.

4. By the customers' buying agents or confirming houses in Paris, Hamburg, etc. working usually on a commission basis with a more or less—less rather than more—free hand, but so far as the shippers were concerned acting as principals and therefore responsible for payment.

The Latin-American importer had much greater latitude than Manchester's Eastern customers in deciding what to buy. He was not executing an order ; he was a free agent. He bought not what he had sold, but what he thought he could sell. In consequence the Latin-American buyer was almost always a principal backing his own opinion, not an impersonal cable from Calcutta or Hong Kong. In other words, the interplay between buyer and seller was of relatively greater importance in this Latin-American trade, or perhaps it would be more accurate to say that the scene of it was in Manchester rather than in Calcutta or Hong Kong.

As to the goods themselves, in general, the foreign merchant, knowing the trade and custom of his market, said or indicated what he wanted ; but he was also often open to and largely influenced by proposals and offers from Manchester. The one principle he observed if he was wise was that nothing was cheap that was not suitable. On the whole all these countries were extremely conservative. Throughout the civilised world, and gradually everywhere, fashion to-day is becoming more and more uniform. Formerly not only each market had its specialities but often each Province or Department. Thus in Colombia what you sold on the Coast was quite different from what you sold in Bogotá or Medellín, in Cúcuta or in Pasto. Similarly in the various districts of Brazil, in Chile, in Peru, taste differed completely and we catered for it accordingly. Hence those Carmelitas and Panchos at the beginning of my article, suitable for Medellín and for Medellín only.

Apart from the quality of the goods themselves, their designs and colours, each market—often each district or department—had its own special requirements of width, length, folding, stamping, etc. Thus according to their destination, white shirtings for Colombia were shipped in 20, 24, 30, 40 yard pieces, or for Venezuela in pieces of 40, 60 or

80 metres or 40 yards or 50 varas (varas were of at least half-a-dozen different lengths according to the country—Venezuela, Colombia, Cuba, Peru—where that measure was in use). The pieces were made up long-fold, lapped or plaited, print-way, silk-fold or French-fold, book-fold, Dutch-fold, and in Cuba certain white shirtings in a mysterious and elaborate way known as crea-fold. In some places goods bore the importer's name or trade-mark; in others, complete anonymity was the practice. Nor did the shipper's name appear, although his trade-mark, perhaps only a small stamp or label on the bolt of the piece, revealed it or enabled his competitor to trace it. For the shipper that was an advantage, possibly an advertisement; for the importer a disadvantage, for he was not anxious that his competitors should know where he got his goods. Naturally, these considerations did not apply to the important trade of the firms established both here and on the other side.

Just as in the English home trade there used to be, and still are, certain selling prices—1/11d. 2/11d. 8/11d. 19/11d., etc.—so there were in some Latin-American markets. To fit these the importer had to calculate the landed duty-paid cost of what he bought. Therefore we who wished to sell had to be able to make this calculation, for it was useless to offer to supply to Venezuela, for example, something which was too dear to sell *for* not *at* 1 real, and not good enough for a real-y-medio ( $1\frac{1}{2}$  reals). (Note “for” not “at,” because it was the retailers’ not the wholesalers’ selling price which was in question).

Much of the business was in firm hands, carried on in old, close, friendly and above all mutually confident relationship. Nevertheless few Latin-American merchants, though those few included some of the most important, bought from one shipper only. The majority had several Manchester suppliers, but they hesitated to deal with too many, for, whilst they might find an advantage in a wider range to choose from, they realised that they were likely to fare better in unforeseen circumstances if they were a Manchester shipper's faithful customer. This was by no means an unimportant factor. In the first place the faithful customer knew that he would find consideration and understanding if for good reason he were to fall behind in his payments. In the second place, as I point out later, frequent

changes in tariff, customs and other regulations of all kinds have been a constant cause of difficulty, and although normally they are the buyer's risk and concern, in practice he knew that the seller, the shipper, would help to deal with them and would often bear or at least share the consequences.

#### SHIPPING DOCUMENTS

The Manchester shipper was and still is intimately and directly concerned with the Customs tariffs and the rules and regulations for Consular invoices, declarations and indeed with all the documentation which the export of his goods entails. That they are by no means simple was strikingly illustrated in an "Exhibition on Export Documentation," which Imperial Chemical Industries arranged at the Congress of the International Chamber of Commerce at Vienna in 1953. The diversity, the intricacies, the complications of the regulations, especially in connection with consular invoices, are hardly credible.

With all this the shipper had to be fully conversant. (Sometimes his Liverpool or other Shipping Agents, with their expert knowledge of the markets in which they specialise, came to his rescue). For the actual consular declarations he nominally disclaimed responsibility, but in practice he often had to shoulder it because "you claim to know our market so we naturally expect you to take care of the declaration." Of course, the shipper did not seek to evade the consequences of his own mistakes; they could be pretty serious too. In Venezuela, for instance, a small error might involve the payment of double duties and the confiscation of the goods.

#### PACKING

Packing sounds simple enough; pack the goods with reasonable care and economy so that they may reach their destinations in good condition. But there was and still is more to it than that. It is a specialist's job. Freight on textiles is normally charged on weight or measurement at ship's option, so that one naturally keeps both as low as possible; and both because bales would usually incur less freight than cases and because in nearly all Latin-American countries duties on textiles are levied on the gross weight, bales are generally used,



although the contents of cases open out better than those of bales. Even embossed goods are often packed in bales. It costs more to pack bales than cases, but the materials cost less. Also in many places there is more use for hessians, etc. than for empty cases. Argentina is an exception. For Argentina most piece-goods are packed in cases, for there the duty is levied not on the gross weight nor on the *pure* net weight but on the *net* weight, i.e. on the goods plus their immediate wrappings. In consequence only grey unfinished goods are packed in bales; shirtings, prints, etc. are packed in cases too, but—and this is essential—with the pieces wrapped in paper.

There are numerous idiosyncrasies with which the shipper must be familiar; weight limits for goods to be transported by mule or llama, which means a maximum weight not to be exceeded, but a minimum weight too, since the inland transport charge is by load, so you must get as much as you can for your money. This in turn means that when you book an order for so many bales you have to calculate how many lumps of grey cloth, when finished, and made-up into pieces, will make the requisite number of bales. There are other stipulations—crossed hoops to make pilferage more difficult; tarred seams to show if the bale has been tampered with; copper hoops for countries where copper is scarce and dear and the extra cost worth while; “ears” for easier handling of bales on certain routes; the marking too, apart from marks and numbers, weights and/or measurements, metric or otherwise, contents, country of origin, on how many sides of the package, and which. With all these details the competent packer has to be acquainted.

Before the late nineties of last century there were few packing warehouses or outside facilities for packing, so the shipper had to be conversant with all these details which I have just described. Thus really in order to operate as a shipper he had to have the making-up and packing equipment, warehouse accommodation and staff and to have or anticipate a large enough turnover to justify his overhead expenses. Gradually one shipper after another came to the conclusion that it paid him better to go in a packing warehouse. This depended also upon the nature as well as upon the size of the business. In

the Eastern trade delivery by the contract date is essential, and the contract date is almost invariably the end of a month. Hence at the end of the month a rush, not because the packing has been badly planned but because the goods have been delivered at the last moment. But the making-up and packing staff has to be kept and paid, even though in the early part of the month there may be little work for them. The same problem confronted shippers to Argentina, Uruguay, Chile and other markets with distinct seasons; they had to cope with a half-yearly rush. Latin-American shippers whose business was fairly evenly spread and with whom delivery date was of less importance were the last to maintain their own warehouses, but owing to the decline in trade there are few if any who do so to-day. Besides the packers have a wider range of activity, handling goods of all kinds, not only for export, and so can adapt themselves better to these fluctuations. These packing warehouses now handle nearly all the making-up and packing of textiles for export. The packers are the landlords and the shippers their tenants who pay rent on a sliding scale—the more packing and making-up, the less rent.

#### TARIFFS

Throughout Latin-America, with the exception of Panama, nearly all import duties upon textiles are specific, not *ad valorem*, so that a description or definition is called for, often in the precise nomenclature of the tariff. One can understand the preference for specific duties. *Ad valorem* tariffs require expert and incorruptible appraisers, who are not everywhere to be found. Specific duties, dependent upon ocular evidence of weight, measurement, count of threads, etc. are easier to check and harder to dodge. Certain countries use the French tariff system based on threads and weight, the intention being that by levying higher duties upon light-weight fine count qualities than upon heavy coarse qualities to equate *ad valorem* with specific duties. But it is not enough to supply a cloth with say 32 threads per 5 mm. weighing over 80 grammes per square metre—you have to take care that each piece, not the average piece, does not count 33 threads or weigh 79 grammes, which is not so easy to calculate when one is getting the grey-cloth made,

which when bleached, dyed or printed will fit this specification. Nor must you leave too wide a margin, for if your cloth had 28 threads and weighed 90 grammes it would pay more duty and not be as good value as if it had 32 threads and weighed 82 grammes ; so one has to cut it pretty fine.

There was an interesting example of the effect of tariffs upon these standard selling prices when about 50 years ago the U.S.A. were capturing the trade in narrow prints in Colombia, Ecuador, and Central America ; they were for a short period unsuccessful in Venezuela because the weight and threads of their standard prints just failed to fit into the Venezuelan tariff and therefore no-one bought them. I recall an amusing anomaly which was discovered many years ago in the Venezuelan Customs Tariff. Whilst the duty on packages containing goods of different customs categories was charged on all at the highest rate to which any was liable, the duty on goods imported by parcels' post was levied at the rate applicable to whichever item weighed most. Now toys paid a low duty in Venezuela, silk goods a very high duty. The result was inevitable ; till it was stopped, there was a brisk trade in parcels declared as "muñecas no especificadas" (dolls, not otherwise specified) containing one doll which weighed a little more than as many silk handkerchiefs or yards of silk as you could get into an 11 lb. parcel. Thus the Venezuelan Custom House got a little revenue and the Venezuelan customer got some cheap silks. The alternative would have been no revenue and a small quantity of silks brought in by travellers or smuggled from Trinidad or Curaçao.

#### TRADING TERMS

There were fundamental differences between this Latin-American trade and the great India and China trade. The Latin-American goods were hardly ever sold until they arrived, whilst the Eastern goods were bought and sold simultaneously, so-called *Indents*. This meant that when a British merchant e.g. in Shanghai bought 100 cases of sateens at so many pence per yard c.i.f. for January shipment, he sold them at so many cents and for the equivalent delivery to his Chinese customer, covering his exchange by buying forward sterling for the

appropriate date, so that if all went as planned, he was 'dormy' for his profit. There were important exceptions of course—the huge quantities of goods shipped in consignment to India and China by the great firms established here for sale by their own houses or correspondents there, and to China for sale in the well-known Auctions. In South America such Indents were quite exceptional and although there were, as stated above, important Manchester firms who supplied their own branches in Latin-America, especially in Argentina, Brazil, Chile, Peru and Uruguay, most of the business was between the Manchester shipper and his Latin-American customer in goods to be sold after arrival, so that the question of covering exchange did not arise; indeed it was more speculative to cover than not to. A recent *Manchester Guardian* article about export trade described "relationships between seller and buyer that are so close that one will send off the goods and cheerfully wait until it is convenient for the other to pay." To-day that is very much the exception; formerly in this Latin-American textile business it was the rule; indeed it was self-understood, not perhaps going quite so far as the quotation suggests, but we expected to be paid under the normal terms of six months' open credit in current account, with interest at 1% over Bank Rate, minimum 5%. We invoiced the goods and awaited our customer's remittance which was due in six months. Sometimes it came punctually, sometimes later, but often earlier; sometimes indeed before the goods were shipped or even ordered, for it suited some importers with ample means to keep funds here. These remittances were usually in round figures, not for an exact invoice amount; they were seldom Bank cheques but usually exporters' drafts against the proceeds of produce (coffee, cocoa, etc.) sent in consignment, not, as to-day, sold firm in advance based on standard types or samples. The produce might be shipped to the Continent or even to the U.S.A. but the drafts, except those on New York, were either on London or for domicile and payment in London. There was no question of our drawing on our customer. In many places, in all but a few places 60 years ago, there was probably no machinery for handling drafts—I cannot state this positively, for we never had occasion to enquire, since the mere suggestion



would have ruled out any possibility of business ; it would have been regarded as evidence of want of confidence. I recall that early in the century, when the practice of drawing on one's customer was beginning, started by New York exporters I think, the chief merchants of Manizales (Colombia) came to an agreement to accept no Manchester or similar drafts. Sometimes coffee, etc. was consigned to us, for sale at best ; sometimes we received gold or silver bars, so accurately assayed in Colombia that their value differed by only a few pence in hundreds or perhaps thousands of pounds.

At that time, as I have explained, sentiment counted for much in business relations with Manchester, whereas as competition became keener, conditions of payment more strictly defined, goods standardised and dependence on credit increased, sentiment receded. (About 1910 my firm contemplated opening a New York office thinking that with the goodwill which we enjoyed we would get a good share of the growing trade in American prints, etc. But we abandoned the idea, because we realised that we would not be able to reconcile the cut prices at which we would have to sell with the tolerant and give-and-take methods which our clients took for granted and would continue to expect from us).

Sometimes we are accused of being old-fashioned and obtuse, but such accusations directed against Manchester shippers to Latin-America are certainly unfounded. We go rather to the other extreme in our adaptability. One reads that we stick to the British system of measures, that we will not quote in the buyer's currency, etc. I remember a complaint from Manágua that we quoted in pence per yard loco Manchester packing extra, but when we offered to quote c.i.f. in cents and decimals per metre our customer replied "for Heaven's sake don't : how can I compare your prices with others ?" No, we are willing to sell in the buyer's currency, landed, duty paid and delivered in his store, if we can cover the exchange and if the regulations of his country permit (to-day in several Latin-American countries they do not), with the sole proviso that the risk of changes in the rate of duty is his and not ours.

The Manchester shipper of those days had to do much more than provide the goods that were wanted ; with a knowledge of Spanish (or Portuguese for Brazil) he had to be fully conversant with shipping, insurance, finance, as well as with tariffs, etc.. Often too—a privilege, sometimes a pleasure, always a responsibility—we were charged with arranging for the education of our customers' children ; term-time was fairly simple, but the holidays often presented a problem. One well-known London firm used to print as one of its conditions "we do not undertake to look after the education of our customers' children," but I do not suppose they were able to enforce it, for they would inevitably be told "we quite understand, but of course you will make an exception in our case." And there were many similar personal services which we shippers were pleased and which indeed it paid us to render. In short, the faithful customer knew that in his Manchester shipper he had a "guide, philosopher and friend."

INSURANCE of course, was a matter of supreme importance. It used to go without saying that the shipper insured the goods which he sold ; if he was giving credit he certainly insisted upon insuring them. For an importer to have his open policy is a comparatively new development ; quite new and very unsatisfactory is the regulation which Argentina, Colombia and Mexico have imposed, that imports must be insured in the buyers' country—in Colombia freight too must be paid there.

It was customary to insure against all risks up to the final destination of the goods. If they were going to some point in the interior, e.g. Bogotá or La Paz, it was necessary to subdivide the insurance, and, for the interior risk, to increase the insured value by the amount of the duties which would have been paid. It was wise therefore to refuse requests sometimes made to cover up to the coastal port only, for if the cover ended there or from there on were taken out by the importer, whether with a local or a foreign company, in the event of a claim other than for total loss, there would be a danger of argument where the loss or damage occurred, with the consequent risk of falling between two stools.

In spite of every care and precaution one could not escape, or in those days insure against, bad debts. Few were probably

due to dishonesty or bad faith ; most were due either directly or indirectly to violent fluctuations in the price of the country's main products—wheat, coffee, rubber, tin, etc.,—so the present movement reported from Washington to study the prospects of commodity agreements to stabilise fluctuations in prices, is both welcome and overdue. Difficulties were also caused by political upheavals—one used to be warned against giving credit to people who were mixed up in politics—in to-day and out (or in prison) to-morrow ; by revolutions, etc. : by sudden decrees or regulations affecting imports or their payment ; and finally by acts of God, such as the Valparaiso earthquake of 1906. Many years ago news and remittances from one of my firm's customers in Central America ceased and for a long time we heard nothing ; but years later he emerged as President of the Republic and paid in full.

#### SCALE OF TRADE AND NUMBER OF TRADERS

Without going into detail, let me give these few figures to show the size and value of the trade, with some comparison of 1900 with later years :

##### BRITISH EXPORTS OF COTTON PIECE GOODS

		Millions of yards	Millions of £s.	Average value. Pence per yard	Population in millions
1900	...	730	7.5	2½	48
1916	...	600	9.5	3½	77
1927	...	373	12.4	8	90
1938	...	200	4.6	5½	112
1957	...	4	.75	45	173

NOTE: The figures for 1938 and 1957 are in square yards, about 5% less than linear yards ; and include artificial silk (rayon) etc. not previously recorded.

It would be interesting if one could add two columns to this table to show how many exporters or shippers sold these goods and how many Latin-American importers or shippers sold these goods and how many Latin-American importers bought them. Unfortunately this is not possible. But whatever

the number of Latin-American shippers in 1900 or 1957 or in any other year, it certainly greatly increased between 1900 and 1915, and especially between 1918 and 1945, not only the number of shippers, but also the number of Latin-American importers, with the result that the trade, notwithstanding its catastrophic decline in the later years, has flowed through many more channels. Of this there are three explanations—packing facilities, immigration and financial facilities.

The growth of packing facilities, which enabled shippers to operate with less capital, has already been described. Immigration must be stressed because many of those who, for political or economic reasons, have emigrated from the Middle East, North Africa and the Baltic States to Latin America have gone in for textiles, first as retailers, but soon as direct importers, often from relatives or compatriots in Manchester.

FINANCIAL FACILITIES were constantly being extended; native Banks were being formed and branches of existing British, Canadian and other banks<sup>1</sup> were being opened, all equipped and eager for business; more and more business was being done on draft terms instead of in open account, whilst an ever-growing proportion of capital goods and raw or semi-materials for factories, e.g. raw cotton and wool tops, was being paid for under letters of credit (in some cases not on the seller's demand but to comply with the importing country's regulations). In short, both the exporter and the importer were able to get credit, and the advantage which the old-established wealthy firms enjoyed tended to diminish. The cover offered by the *Export Credits Guarantee Department* also helped the newly established shipper by enabling him to get credit and thus to do a larger business.

<sup>1</sup>To-day the Bank of London and South America which has absorbed the London and Brazilian Bank, the Anglo-South American Bank and the British Bank of South America, is established in nine South American and three Central American countries, the Royal Bank of Canada in six South American and three Caribbean countries and the Bank of Nova Scotia in Cuba and the Dominican Republic. In 1958 the Bank of London and South America's branches in Colombia, Ecuador, Venezuela and Central America were re-established in conjunction with the Bank of Montreal, under the title Bank of London & Montreal Limited, with headquarters at Nassau (Bahamas).



## POLITICAL AND OTHER DIFFICULTIES

During these 50/60 years this trade has been continually beset by unforeseen economic and political difficulties—sudden changes in tariffs, customs regulations, trade-mark legislation, discrimination of all sorts, seldom in our favour, and almost invariably of immediate application. Tariff changes have been a constant cause of trouble. We were wont to press for extensions, at any rate for the exemption from higher duties of goods demonstrably sold firm before the date of the corresponding decree. Our protests were almost always in vain and the only concession, which could scarcely be denied, was that no penalties were imposed upon goods correctly declared, which were shipped before but arrived after the date of the new regulation or decree. But even they did not escape the new duties. As to duties in general, in the early years of the century we neither enjoyed nor suffered from discrimination. The only important exception was and still is in Cuba, where since 1903 cotton textiles from the U.S.A. have a 30/40% tariff preference over similar goods from elsewhere.

M.F.N. (most favoured nation) treatment admittedly helped us for a few years in 8 Latin-American markets where we had this arrangement and Japan had not, though in 6 others the position was reversed. And for a period El Salvador and Guatemala levied higher duties upon Japanese than upon British textiles, because Japan was selling a lot to them and buying little from them. But nowadays M.F.N. is out of date so far as Lancashire textiles and Latin-America are concerned. Quotas, import licencing, currency regulations, etc. have made M.F.N. obsolete and ineffective.

The Manchester Chamber of Commerce has continuously been in touch with the Board of Trade about all these problems and has indeed bombarded it with appropriate protests, recommendations and exhortations, but generally without success, especially when we have protested about discrimination against us on the ground that we are selling much more to the respective country, than we were buying from it; and when we have suggested the appropriate action, we have been told that "what is sauce for the goose is sauce for the gander," and asked

if we say to Argentina, Chile, Cuba, etc. that they should buy from those who buy from them, what we propose to reply when the positions are reversed, and Brazil, Colombia and the coffee-growing countries of Central America can say the same to us.

These protests are not new ; as long ago as 1886 in reply to representations from the Manchester Chamber, Mr. James Bryce, then Under-Secretary for Foreign Affairs in Mr. Gladstone's Government, wrote that he was directed by the Foreign Secretary Lord Rosebery to state that he was unable to "give the support of Her Majesty's Government to commercial or industrial undertakings, or to applications for concessions from a foreign Government, where he is unable to form a correct judgment as to the soundness or practicability of such enterprises. Within the limits that this office can properly act in these matter, aid is constantly afforded to British merchants and shipowners."

The letter went on to invite practical suggestions as to what greater measure of support its representatives abroad might give to merchants and traders. To this the Chamber in its reply, whilst agreeing with the principles laid down by the Government, expressed the opinion

"that the more energetic of Her Majesty's consuls do not always meet with a full measure of support from the permanent officials of the Foreign Office. This Board would fail in their duty if they withheld the expression of their opinion that the most active officers of the Foreign Office are not always the most acceptable to heads of departments at home, but that, on the contrary, these officers have frequently to contend against the *vis inertia* of taciturnity and delay ; and this not because the eminent men who are the permanent officials are themselves inert, but rather because the traditions of all Government are favourable to a *restful behaviour* (my italics). Naturally enough, that which is the fashion at the head of a department is apt to find imitation in all its branches, the pace of the legations and consulates being regulated accordingly."

## CONCLUSION

At the beginning of this article I stated that in the last 50/60 years there have been great changes in the way in which this Latin-American textile trade is conducted. It might be well to sum up :

The major changes are in the terms and conditions of trading and credit ; in the nature of the goods—the switch from qualities to be specially made to standardized lines which are in stock or current production ; and in the close personal and confidential relations on which the business was based. To-day sentiment hardly counts. “Business is business.” This does not mean that an intimate and up-to-date knowledge of the conditions and regulations, languages, currencies, tariffs, etc. is not still essential.

As the export trade of these Republics revives and they overcome their balance of payment difficulties they should be able to relax their import restrictions. In spite of local production and foreign competition our new products and specialities, in which we still lead the way, may then enable us to retain or recover a share of the Latin-American trade, always provided we continue to deserve and enjoy two vital and imponderable advantages—confidence and goodwill, in other words “palabra inglesa.” Let us then make sure of the little that can come our way by living up to this reputation, the reputation of the *Good Merchant*, who in the words of Thomas Fuller nearly 300 years ago “never warrants any ware for good but what it is so indeed” or that of the advice (which of course did not only relate to cotton textiles) which Ralli Brothers record in their 1951 booklet as having been given sixty years’ ago to a newly appointed manager by their senior partner “to remember that his first consideration in all his dealings must always be the honour of the House.”

W. H. ZIMMERN

# Mr. Spiegelglas on World Exports

In his article "World Exports of Manufactures, 1956 vs. 1937" *The Manchester School*, May, 1959, Vol. XXVII No. 2) Stephen Spiegelglas places great emphasis at a number of points on the decline in the percentage share of Germany in the world exports of manufactures between 1937 and 1956.

It would be surprising if any such decline had taken place. But it is not surprising that Spiegelglas should draw this conclusion since (according to footnote 3, page 112) his 1956 figures (and his 1950 figures too, although he does not say so) relate to Western Germany only—whereas his 1937 figures cover the whole of pre-war Germany!

"International Financial Statistics" (e.g. Vol. VIII No. 6, pages 209—210) quote German calculations, which put the Federal Republic's share in the 1936 total of German exports at very nearly 70%. If we assume that this proportion also holds good for exports of manufactures, then the total of "Germany's" exports in 1937 in Spiegelglas's Table 3 (page 117) should be reduced to some \$1420 millions, and the total for all nine countries listed, to some \$7812 millions.

As a consequence Table 2 (page 114) should now read :—

**TABLE 2**  
PERCENTAGE SHARE OF WORLD EXPORTS OF MANUFACTURES  
OF NINE COUNTRIES IN 1937, 1950 AND 1956

Country	Share in 1937	Change 1937-1956	Share in Jan.—Sept. 1958	Change 1937— Jan.—Sept. 1958
United States ...	22.1	+8.9	28.9	+6.8
United Kingdom	25.4	—5.8	18.6	—6.8
Germany (West)	18.0	—1.6	19.2	+1.2
France ... ..	7.2	+1.1	8.9	+1.7
Belgium ... ..	6.7	—0.1	6.3	—0.4
Canada ... ..	5.6	+0.4	5.5	—0.1
Japan ... ..	8.2	—2.5	5.2	—3.0
Italy ... ..	4.1	—0.4	4.3	+0.2
Sweden ... ..	2.8	—0.1	3.2	+0.4
	100.0			



The changes in shares between 1937 and 1956 then become quite different from those given by Spiegelglas, especially for the crucial countries in his discussion—United States, United Kingdom, and Germany.

The final column in Table 2 showing the changes in shares between 1899 and 1937 would also doubtless alter, if we could calculate the share of the present Federal Republic of Germany in the German total for 1899.

As a consequence a great deal of the subsequent discussion also becomes worthless, and tables 3, 6, 8 and 9 and the sets of figures on page 123, page 130, page 133 and page 134 all need to be amended.

With the publication of Vol. VIII No 3 of *Commodity Trade Statistics* (United Nations, N.Y.) covering the period January—September, 1958, it is now possible to carry forward the shares of world trade in manufactures to the first three-quarters of 1958. This is done in the two right-hand columns of the amended version of Spiegelglas's Table 2 above. Western Germany had by then increased her share well above her pre-war figure, the United Kingdom had stepped down to third place and lost some more of her pre-war share and the shares of Belgium, Canada and Japan had all fallen somewhat compared with Spiegelglas's 1956 figures.

It is a pity that an article on a subject of such intrinsic importance should have been marred by such a simple but fundamental slip.

R. G. OPIE

# Extraneous Estimates and Goodness of Fit: a Problem in Empirical Economics

Formally, this note is concerned with the problem of measuring the goodness of fit when an extraneous estimate of the coefficient of one of the variables in a multiple regression equation is substituted for the internal least squares estimate of that coefficient, but the variance of this external estimate is unknown. This is an obvious extension of the work of Durbin and Stone, whose solution for the case of extraneous estimates with known (expected) variances is discussed in section 1. The extension itself, an application of multiple correlation concepts to non-least squares estimates, is discussed in sections 2 and 3. In the last section these concepts are applied to a problem of estimating economic parameters.<sup>1</sup>

But this is altogether too formal and too rigorous a description of an exercise which, by its very nature, is neither formal nor rigorous. It is, in fact, an attempt to find some way out of a practical difficulty in which the writer found himself—his multiple least squares regression estimates of "income elasticity" persisted, in spite of the use of such more obvious tricks as transforming the variables, to be unacceptable on economic grounds. Such a criterion of acceptability may seem strange to the theoretical statistician. It is, indeed a confession that one's statistical procedure is so dubious that one is not prepared to accept "queer" results even if they satisfy statistical tests.

This procedure of refusing to accept at their face value estimates of parameters which have "perverse" signs or

<sup>1</sup>This problem, which originally gave rise to the more general consideration of the matter, arose in the course of the writer's work at the Department of Applied Economics, Cambridge. Mr. W. B. Reddaway first suggested to the writer that he use extraneous estimates. Mr. J. A. C. Brown drew attention to some of the difficulties involved. Mr. G. R. Fisher offered extensive and constructive criticism of an earlier draft. The calculations involved were carried out by the Department's computers under the direction of Mrs. Mary Chambers or supervised by its Programmer, Dr. L. J. Slater. This paper was written while the author was Research Fellow in Economic Statistics at the University of Manchester.

"entirely implausible" magnitudes i.e. which contradict one's economic model and one's general knowledge of economic relationships, is quite common in empirical work in economics.<sup>1</sup> But a refusal to accept an estimate can never be a final step: just as one's economics tells one that the variable in question cannot have the influence suggested by the estimating procedure, so it often tells one that it is not without influence.<sup>2</sup> There are, of course, well known statistical methods for overcoming the difficulties of biased or inefficient estimates. If these fail, or if they do not seem applicable, one must frankly confess one's inability to estimate the coefficient in question.

But even this may not be the end of the story. If the several explanatory variables are intercorrelated, the (plausible and significant) values of the other coefficients depend in part upon the value of that just rejected. In such cases, it may be worthwhile to substitute one's best estimate, based on outside knowledge, of the influence of the variable in question for its unacceptable least squares estimate and to observe the effect of this on the other coefficients. Such a procedure is particularly attractive if, as in the writer's case, the chief interest of the analysis attaches to estimating the influences of the other variables and the intractable one is brought in primarily to enable one to do so. At the same time, it seems desirable to ensure that one's extraneous estimates are not in too great a conflict with the evidence of the data analysed. It is for this last purpose that it is proposed to use measures of goodness of fit.

<sup>1</sup>See e.g. H. Neisser and F. Modigliani, *National Incomes and International Trade*, Urbana, 1953 pp. 73—74, 285; J. J. Polak, *An International Economic System*, London, 1954, p. 72; J. A. C. Brown, "Seasonality and elasticity of demand for food in Great Britain since derationing," read before a meeting of the Agricultural Economics Society, December 1958, *passim*.

<sup>2</sup>This, incidentally, is one reason why one is often reluctant to discard variables which have no significant explanatory power by analysis of variance criteria. (cf. Brown, *loc. cit.*, p. 5.) As Mr. Reddaway has often emphasised to the author, in economics coefficients subject to large sampling errors are simply uncertain in value, they are not equivalent to zeros. Multicollinearity is, of course, another such reason.

The problem of estimating econometric relationships utilising extraneous information about one of the coefficients has been discussed by Durbin and, following him, Stone.<sup>1, 2</sup>

Starting with an estimating equation of the form

$$Y = a + bX + cZ + e \quad (1)$$

Durbin proposed a "simple method" of utilizing an external estimate of  $c$ , say  $k$ , and then estimating by least squares the values of  $a$  and  $b$  subject to the constraint that  $c \equiv k$ :

$$Y - kZ = a' + b'X + e', \quad (2)$$

hence 
$$b' = \frac{\sum x(y - kz)}{\sum x^2}$$

with all variables measured in deviations from their sample means, i.e. where

$$x_t = X_t - \bar{X}, \text{ etc.}$$

He was thus able to establish the simple and intuitively appealing relation between  $b'$  and  $b$

$$b' = b + (c - k) \frac{\sum xz}{\sum x^2} \quad (3)$$

He went on to demonstrate that if  $k$  was an unbiased estimate of  $c$ , then  $b'$  was an unbiased estimate of  $b$ <sup>3</sup>. He also showed that if the variance of  $k$  is smaller than the variance of  $c$ , then the variance of  $b'$  must be smaller than the variance of  $b$ . Durbin proposed this change in the variance of the parameter estimated as the criterion for deciding whether or not to use the external information instead of multiple regression estimating procedures.<sup>4</sup>

Durbin and Stone were fortunate in having both unbiased external estimates of one of their parameters and unbiased

<sup>1</sup>J. Durbin, "A note on regression when there is extraneous information about one of the coefficients, *Journal of the American Statistical Association*, Vol. 48, (Dec. 1953), pp. 799—808. Richard Stone, *The Measurement of Consumers' Expenditure and Behaviour in the United Kingdom 1920—1938*, Vol. I., Cambridge, 1954, pp. 303—305.

<sup>2</sup>Extraneous estimates were earlier used by Tobin, in "A Statistical Demand Function for Food in the U.S.A.," *Journal of the Royal Statistical Society*, Vol. CXIII, Pt. II, (1950) Series A, pp. 113—140, esp. pp. 133—4. Tobin, however, used the extraneous estimates to correct his explanatory variable, not his dependent one, and thus faced rather different problems of goodness of fit.

<sup>3</sup>More accurately, if the one was an unbiased estimate of the relevant population parameter, so was the other.

<sup>4</sup>Durbin, *loc. cit.*, pp. 799—802.



estimates of the variances of these external estimates. They were concerned only to overcome the difficulties of multi-collinearity between their independent variables, which frustrated attempts at simultaneous least squares estimation of coefficients, and were able to propose an appropriate criterion—that of the size of the variance of the coefficients—to decide whether their method was helpful.

They were thus able to avoid the question of the goodness of fit as measured by correlation coefficients. Stone confined himself to contrasting two measures of correlation:  $R^2$ , the coefficient of determination<sup>1</sup> between the left and right hand variables in equation (2), say  $r^2_{(Y-kZ)X}$  in the notation of Ezekiel, and  $R^{*2}$ , the coefficient of multiple determination naturally arising in connection with equation (1), say  $R^2_{Y.XZ}$ . He interpreted both as measures of the proportion of the variance of the dependent variable explained by the independent variable and pointed out that, because of multicollinearity,  $R^2$  may exceed  $R^{*2}$ , and be a more reliable measure.<sup>2</sup>

The problem which is here being considered is rather different in its emphasis from the Stone—Durbin problem, although it is an obvious extension of it: Suppose that one of the coefficients in equation (1) cannot be successfully estimated by least squares. This lack of success may be caused by near multicollinearity. In this case the coefficient may be unbiased, but it may be an extreme “small sample” value yielded by an inefficient estimating procedure. This may be revealed by the size of the standard error, if this is reliable<sup>3</sup>, but is primarily a matter of perverse signs, entirely unpalatable magnitudes, etc. Or the coefficient may be biased because of simultaneous equation complications, or because an explanatory variable correlated with one of those included has been left out, or because

<sup>1</sup>Ezekiel's terminology of coefficient of determination for the square of the relevant correlation coefficient is used throughout this paper. Mordecai Ezekiel, *Methods of Correlation Analysis*, Wiley, New York, 1930, p. 120, etc.

<sup>2</sup>Stone, *op. cit.*, pp. 328—330.

<sup>3</sup>As it may not be, say, because of autocorrelation.

the explanatory variables contain errors.<sup>1</sup> The bias might be revealed in the same manner. A combination of more than one of these difficulties is only too likely to occur in any actual economic example.<sup>2</sup>

It may be impossible or inexpedient to deal with these difficulties by any of the scientifically tested methods: One may not have reliable *a priori* information enabling one to impose restrictions on the coefficients.<sup>3</sup> The number of observations is seldom sufficient to enable one to use procedures based on classification. Data on the omitted variables may not be available, indeed, such variables may not even be quantifiable. This difficulty may also preclude resort to simultaneous equations, two stage least squares, and instrumental variables methods. Moreover, although these methods yield asymptotically unbiased estimates, they may not be helpful with a small sample because they increase the errors of the estimates.

It might now be of interest to use an extraneous estimate of the coefficient in question and see how this affects the other results. This extraneous estimate may be derived statistically from a related set of data or it may be no better than an informed guess. At any rate, its variance is not known and cannot be estimated from available information.

Such an extraneous estimate can be utilized by using Durbin's "simple method." The other coefficient(s) may now be estimated directly by the method of least squares from equation (2) or by Durbin's formula. In either case, the estimating procedure does not directly yield any measures of goodness of fit. Since the standard error of the extraneous estimate is not known,

<sup>1</sup>From a statistical point of view these three sorts of bias may be the same in kind. But an economist may often find it useful to think of the first two as of cases where the net influence of a particular explanatory variable cannot be estimated, but its joint influence with another variable can be. Such an estimate can be quite useful so long as one can believe that the relationship between the two explanatory variables is as stable as that being estimated. Its utility is enhanced if the variable explicitly considered is the independent one in both relations.

Cf. R. L. Marris, "The purchasing power of British Exports," *Economica*, n.s., vol. XXII, (1955), pp. 20—21.

<sup>2</sup>For a more systematic exposition of all these matters, see e.g. H. Theil, *Economic Forecasts and Policy*, Amsterdam, 1958, Chapter 6 and appendix.

<sup>3</sup>Theil, *op. cit.*, p. 215.

that of the parameter estimated by the simple method cannot be calculated. Both of Stone's measures of correlation can be computed, but, since they refer to the variances of different variables, they do not seem to be directly comparable.

Nonetheless, it seems important to be able to give some sort of answer to the question of how much one has altered the goodness of fit by using the external estimate. Otherwise it seems impossible to decide whether or not that estimate is reasonably compatible with the data under study.

A measure which immediately suggests itself to answer questions of this sort is an appropriate coefficient of multiple determination. Such a coefficient should be directly comparable with the original least squares multiple determination coefficient between the dependent and the several independent variables. It should thus tell one how well  $X$  and the *constrained* influence of  $Z$  explain or predict  $Y$ , (equation (2) ) and not, as does Stone's  $R^2$ , which "naturally" arises out of equation (2), how well  $X$  explains that part of the variation in  $Y$  not accounted for by the constrained influence of  $Z$ .

The least squares coefficient of multiple determination  $R^{*2}$ , may be interpreted in two ways, which can easily be shown to be equivalent: On the analysis of variance interpretation,  $R^{*2}$  shows the proportion of the variance of the dependent variable which is accounted for by the explanatory variables. On the goodness of fit or prediction interpretation,  $R^{*2}$  is equal to the coefficient of simple determination between the actual values of the dependent variable and those predicted by the estimating equation, i.e.,

$$\begin{aligned} &\text{from equation (1) } R^{*2} = r^2_{YY^*}, \\ &\text{where } Y^* = a + bX + cZ. \end{aligned}$$

It would seem natural, therefore, to apply one of these interpretations explicitly to estimates by the "simple method" and to calculate correlation coefficients in accordance with them. It appears, however, that when one departs from least squares calculations the two interpretations no longer coincide. Moreover, the analysis of variance interpretation cannot readily be extended to non-least squares estimates, and an attempt so to extend it yields measures which, although they have some limited interest, can hardly be interpreted as coefficients of determination.

Let us first attempt to extend the analysis of variance interpretation. Rewriting equation (2) in terms of deviations of all variables from their means and with both explanatory variables on the right hand side

$$y = kz + b'x + e', \quad (2a)$$

squaring both sides and summing

$$\Sigma y^2 = k^2 \Sigma z^2 + 2kb' \Sigma xz + b'^2 \Sigma x^2 + 2k \Sigma ze' + 2b' \Sigma xe' + \Sigma e'^2, \quad (4)$$

which can be rewritten in the more familiar form

$$\Sigma y^2 = b' \Sigma xy + b' k \Sigma xz + k^2 \Sigma z^2 + 2k \Sigma ze' + \Sigma e'^2, \quad (5)$$

by substituting for  $b'$  from (2). ( $\Sigma xe' = 0$ , by least squares calculation).

Now the first three terms on the right hand side of (5) clearly seem part of the explanation. The last term is the residual variation. The fourth term, however, which is not equal to zero since  $k$  is not a least square estimate,<sup>1</sup> is merely an interaction between  $z$  and the error, which is extremely difficult to interpret. Moreover, since there is no restriction on the signs of these terms, except for  $k^2 \Sigma z^2$ , they cannot be treated as non-negative quadratics. Thus, expression (5) cannot be transformed or-

thogonally, i.e., it is not possible to decompose  $\frac{\Sigma y^2}{N}$  into a sum of

independent co-variances with the explanatory variables and the residual variance, as is required for the analysis of variance interpretation of the determination coefficient.<sup>2</sup> Even apart from the question of signs, (5) contains two terms too many for an exact allocation of the variance among the several explanatory variables and the unexplained.

Two ratios of some interest can, nevertheless, be computed from equation (5) :

The first of these

$$P_1 = 1 - \frac{\Sigma e'^2}{\Sigma y^2}, \quad P_1 \leq 1 \quad (6)$$

indicates whether predictions of  $Y$  obtained from equation (2a) are better ( $P_1 > 0$ ) or worse ( $P_1 < 0$ ) than those obtained by assuming that  $Y$  is always equal to its sample mean value. Clearly, if

<sup>1</sup>i.e. Because  $kZ$  is part of the dependent variable in (2).

<sup>2</sup>Harald Cramer, *Mathematical Methods of Statistics*, Princeton, 1946, pp. 116—118, 262—265, 536—538.



one's estimating equation yields predictions which are on balance no better than the repeated use of the unconditional expected value of the dependent variable, it is no use at all. If it yields predictions which are worse than that, it is positively misleading.

The second ratio

$$P_2 = \frac{b' \Sigma xy + kb' \Sigma xz + k^2 \Sigma z^2}{\Sigma y^2}$$

$$= \frac{\Sigma y^{\star 2}}{\Sigma y^2}, \text{ where } y^{\star} = kz + b'x \quad P_2 \geq 0 \quad (7)$$

is merely the ratio of the variance of the estimates of  $Y$  ( $Y^{\star}$ ) obtained from equation (2a) to the original sample variance of  $Y$ . The relevance of this ratio is far from clear and it is presented chiefly for symmetry.

Another measure of how the correlation is affected by imposing an arbitrary value on the coefficient of one of the variables is obtained on the goodness of fit interpretation of the correlation coefficient. This interpretation yields a true coefficient of determination :

$$r^2_{Y Y^{\star}} = \frac{(\Sigma y y^{\star})^2}{\Sigma y^2 \Sigma y^{\star 2}} \quad 0 \leq r_{Y Y^{\star}} \leq 1 \quad (8)$$

which can be evaluated directly, or from the variance—covariance matrix by substituting in (8)

$$r^2_{Y Y^{\star}} = \frac{b'^2 (\Sigma xy)^2 + 2b'k \Sigma xy \Sigma yz + k^2 (\Sigma yz)^2}{y(b' \Sigma xy + b'k \Sigma xz + k^2 \Sigma z^2)} \quad (8a)$$

A check on the calculations is provided by the relation

$$r^2_{Y Y^{\star}} = P_1 + \frac{k^2 (\Sigma ze')^2}{\Sigma y^2 \Sigma y^{\star 2}} = P_2 + \frac{k^2 (\Sigma ze')^2 + 2k \Sigma ze' \Sigma y^{\star 2}}{\Sigma y^2 \Sigma y^{\star 2}} \quad (9)$$

All terms of (9) can again be evaluated from the variance-covariance matrix.

The coefficient  $r^2_{Y Y^{\star}}$  is capable of direct comparison with the least squares coefficient of multiple determination  $R^{*2}$  as a measure of goodness of fit. It cannot, however, be interpreted in the analysis of variance sense.

This being the case, it now becomes more natural to transform the two coefficients of determination into their respective correlation coefficients. Unfortunately, since these are not based

upon independent sets of data, it is not possible to test the significance of differences between them by the Fisher- $z$  transformation. One has to content oneself with impressions.

The concepts developed above may now be applied to an actual example, drawn from the writer's work on the demand for British exports in the interwar period: in the course of this work, multiple regressions were fitted between the natural logarithms of two sets of three time series for the 14 years 1924—38 excluding 1926. In both cases the dependent variable is U.K. exports of home goods in constant (1929) £ mils. ( $E$ ), and the first explanatory variable is the U.K.'s terms of trade—the ratio of the average value index of retained imports to that of exports of home goods, 1929 = 100. ( $P$ ).<sup>1</sup> The other explanatory variable is, in the first case, the rest of the world's exports, in constant (1929) £ mils. ( $M_1$ ) and in the second the rest of the world's imports, similarly measured ( $M_2$ ).<sup>2</sup>

The results are shown in lines 1a and 2a of the Table: it will be noted that, in both cases, the error of the coefficient of  $M$  is so large, relatively to that coefficient, as to make the value of the latter extremely suspect. Also, the introduction of  $M$  into the equation adds nothing to the explanation as measured by  $R^{*2}$ .<sup>3</sup>

The two explanatory variables are, moreover, intercorrelated:  $r_{PM_1} = .38$  and  $r_{PM_2} = .56$ . The effects of this multicollinearity may be observed by comparing the results shown in the table with those of the three simple regressions between the dependent and each of the independent variables:

$$E = a_1 + 1.97P + e_1 \quad r^2 = .94 \\ \pm .15 \quad (i)$$

$$E = a_2 + .77M_1 + e_2 \quad r^2 = .19 \\ \pm .45 \quad (ii)$$

$$E = a_3 + .99M_2 + e_3 \quad r^2 = .38 \\ \pm .37 \quad (iii)$$

<sup>1</sup>From Board of Trade sources—the various indices are linked by a smoothed Fisher-ideal method and shifted to a 1929 presentation base.

<sup>2</sup>From the League of Nations, *Review of World Trade*, 1938.

<sup>3</sup>See note 2, p. 2 above. None of the correlation coefficients shown are corrected for the number of degrees of freedom, because of time series complications.

It will be seen that the coefficients, especially those of  $M$ , change considerably when the other explanatory variable is introduced into the regression.

It will also be obvious to the reader that both the explanatory variables are subject to (not necessarily random) errors of measurement. In addition, the equation clearly does not constitute a closed system. And variables, both quantifiable and otherwise, known or believed to be related both to  $E$  and to  $P$  and  $M$  have been left out. In particular, the coefficient of  $P$  which it is attempted to estimate is *not* a net one. It relates to the response of U.K. exports to British terms of trade when prices of competitive exports move almost exactly in line with the British.<sup>1</sup> This does not necessarily make the estimate worthless.<sup>2</sup>

There is, thus, every reason to be wary of values of the coefficients yielded by the regression. But it is hardly possible to remedy their defects by the standard procedures. It has already been suggested that some of the missing variables are hardly quantifiable. Data for others, which are, are not available. The data used are highly imperfect and, no doubt, could be improved by a sufficient expenditure of time, labour and patience. But no amount of improvement will free them from all error. Finally, there are patently too few observations to permit resort to the more sophisticated procedures, and the period can be lengthened only by making the data even more imperfect and the relationship even less likely to remain unchanged.

There are strong reasons to believe that the true partial elasticity of British exports with respect to the rest of the world's trade<sup>3</sup> is more nearly approximated by equations (ii) and (iii) than by 1a and 2a of the Table. General considerations suggest that British exports are not significantly less income elastic than those of other countries. Certainly, one would be surprised to find that they are, as a group, income inelastic.

Moreover, earlier investigations confirm these impressions. Polak estimated the income elasticity of demand for British exports of manufacturers at .75, but since his procedure is virtually that of a mixture of equations (ii) and (iii), this is not

<sup>1</sup>The correlation between the two sets of index numbers is  $r = .9$ .

<sup>2</sup>See note 1, p. 63, above.

<sup>3</sup>This is, of course, equal to an income elasticity if one assumes a constant marginal (= average) ratio of exports (imports) to income abroad..

conclusive.<sup>1</sup> Neisser and Modigliani, using a more sophisticated approach, found that change of one per cent. in the incomes of other industrial countries excluding France, but including induced income effects in "primaries" countries, would change the volume of British exports in the interwar period by about one half of one per cent. Clearly, a one per cent. change in all of the rest of the world's income might be expected to change British exports by more than that.<sup>2</sup>

All these considerations suggest that the true value of elasticity of British exports with respect to the rest of the world's trade may well be one or more. To test how well this accords with the data values of 1 and 2 were assumed for the coefficient of  $M$ , and the coefficient of  $P$  estimated by the "simple method." The results are shown in the Table, lines 1b and c and 2b and c. The measures of goodness of fit presented are those discussed in earlier sections.

These results give the impression that the data are reasonably compatible with unitary values of the elasticity of  $M$ , but not with ones as high as two: i.e. the lines b, but not the lines c, seem to preserve "reasonably good" fit. The estimating equations b yield predictions which are considerably better than the repeated use of the sample mean value. The variance of these predictions is only moderately larger than that of the observations. The c equations, on the other hand, are no better predictors than the sample mean values. They yield predictions whose variance is twice that of the data.

Another impression of the change in the goodness of fit can be gained by taking the square root of the  $R^{*2}$  and  $r^{*2}$ . This is done in the last column of the table. All the correlation coefficients in that column are significantly higher than zero.

<sup>1</sup>Polak, *op. cit.*, esp. p. 113.

<sup>2</sup>Neisser and Modigliani, *op. cit.*, esp. p. 83. This matter is not as straightforward as it sounds. The addition of France would certainly increase the percentage change in British exports. The (probable) increase in the change in the incomes of primaries countries required to bring the change in their incomes also to one per cent. would likely do the same. But, the figure of .5 per cent. is based on a *uniform* one per cent. income change in the three "members" enumerated: The United States, Germany and the seven minor industrial countries. The work above, on the other hand, attempts to estimate the effect of changes in the rest of the world's trade given their *actual* composition.



Although there is no precise manner of testing the significance of the difference between them, one gains the impression that the *b* values are "reasonably" close to the *a* values, but the *c* values are "quite a bit" lower.

One can now turn one's attention to the real purpose of the exercise i.e. the implications of adopting the "more plausible" *b* values of "income" elasticity for the least squares estimates of "price" elasticity. A comparison of lines *a* and *b* of the Table shows that the adoption of the higher estimate of "income" elasticity decreases the value of the estimate of "price" elasticity as, from (3), it must, given the positive correlation between the two explanatory variables. The decrease is relatively small although that in regression 2 is statistically significant, at the one per cent. level.

Thus, it seems possible to say that, although the coefficients estimates by regressions 1*a* and 2*a* are suspect, the true value of the coefficient of *P* (in so far as *M* may be assumed to be the only other variable relevant to the relationship seriously intercorrelated with *P*) would seem to lie somewhere in the neighbourhood of  $1\frac{1}{4}$ —2. Values near to the lower of these figures are compatible with values of "income" elasticities which do violence neither to the data, nor to one's general impressions about their magnitude.<sup>1</sup>

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<sup>1</sup>This sort of "estimating procedure" has much in common with that proposed by Harberger. (A. C. Harberger, "A Structural Approach to the Problem of Import Demand," *The American Economic Review*, Vol. XLIII, No. 2 (May 1952) pp. 148—160). Harberger's programme is much more ambitious, of course, and he does not use formal goodness of fit comparisons to check upon his assumptions.

*A comparison of least squares and constrained estimates of the relationship between British exports, terms of trade, and the rest of the world's trade 1924—1938, exc. 1926.*

1. a.  $E = -3.44 + 1.90P + .14M_1 + e_1$   $R^{*2} = .94$   $R^* = .97$   
 $\pm .18 \pm .15$
- b.  $E = \underline{1M_1} - 9.09 + 1.53P + e_2$   $P_1 = .74$   
 $P_2 = 1.21$   
 $r^{*2} = .78$   $r^* = .89$   
 $R^2 = .68$
- c.  $E = \underline{2M_1} - 15.68 + 1.09P + e_3$   $P_1 = -.01$   
 $P_2 = 2.05$   
 $r^{*2} = .51$   $r^* = .71$   
 $R^2 = .22$
2. a.  $E = -3.40 + 1.85P + .17M_2 + e_4$   $R^{*2} = .94$   $R^* = .97$   
 $\pm .18 \pm .14$
- b.  $E = \underline{1M_2} - 7.87 + 1.26P + e_5$   $P_1 = .76$   
 $P_2 = 1.20$   
 $r^{*2} = .80$   $r^* = .89$   
 $R^2 = .61$
- c.  $E = \underline{2M_2} - 13.24 + .55P + e_6$   $P_1 = .06$   
 $P_2 = 2.00$   
 $r^{*2} = .53$   $r^* = .73$   
 $R^2 = .07$

All variables are in natural logs. The constrained variables and their coefficients are underlined. The first three measures of fit relating to the constrained estimates are those developed in the text. The last is the Stone  $R^2$  appropriate to the "simple method" estimating equation involved.



## A Monthly Index of Wage-Rates by Industries

In the September, 1959, issue of this Journal the monthly index of wage-rates by industries was given for the period January, 1958 to May, 1959, for all adults, and for men and women separately. Tables 1—3 continue these series to August 1959, and also show annual averages for the five previous years, for comparison. In addition, the monthly figures for 1956 and 1957 for men and women separately are now given, in Tables 4—7, to complete the publication of continuous monthly series back to January, 1956.

For figures for earlier years, and a full account of the sources and methods used, see "An Index of Wage-Rates by Industries," Ely Devons and R. C. Ogley, *The Manchester School*, May, 1958, and "A monthly Index of Wage-Rates by Industries," J. R. Crossley, *Ibid.*, May, 1959 and September, 1959.

The industry groups are the Orders of the 1948 Standard Industrial Classification, 1948 is taken as 100, and the wage-bills of that year are used as weights. Some of the figures now given for recent months may subsequently be revised to take account of later information about wage-rate changes having a retrospective effect.

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TABLE 1

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## ADULT WORKERS

S.I.C. Orders		I	II	III	IV	V	VI		VII	VIII	IX	X		
	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	56	79	19	18	39	102	14	74	61	25	7	46	14
Annual														
1954	134.7	133.2	134.1	135.1	136.8	135.6	137.3	137.7	137.7	134.5	136.4	130.1	136.0	131.8
1955	143.3	140.7	143.9	144.5	146.1	147.0	146.3	147.9	145.9	143.1	146.0	137.8	142.6	138.1
1956	154.7	151.6	157.9	154.0	155.5	160.8	157.5	159.2	157.0	154.9	156.8	150.7	150.4	142.9
1957	162.5	158.7	166.4	160.9	164.3	168.8	165.4	166.9	165.0	161.3	164.9	158.2	156.3	148.3
1958	168.7	168.3	169.8	166.2	169.4	176.3	171.3	172.7	171.0	165.6	172.0	163.5	161.0	152.5
Monthly 1959														
JAN.	172.2	173.9	174.7	168.7	174.3	178.0	176.2	177.9	175.7	169.9	175.8	167.2	163.0	152.8
FEB.	172.7	173.9	174.7	168.8	174.3	178.5	176.4	177.9	176.0	169.9	176.4	167.2	163.2	152.8
MAR.	173.0	173.9	174.8	169.2	174.3	182.6	176.4	177.9	176.0	169.9	176.4	167.2	163.4	153.1
APR.	173.0	173.9	174.8	169.9	174.4	182.6	176.5	177.9	176.1	169.9	176.4	167.3	163.5	153.1
MAY	173.1	173.9	174.8	169.9	174.4	182.6	176.5	177.9	176.1	169.9	176.4	167.3	164.2	153.1
JUNE	173.2	173.9	174.8	169.9	175.7	182.0	176.5	177.9	176.1	169.9	176.4	167.6	164.2	153.1
JULY	173.2	173.9	174.8	170.0	175.7	181.6	176.5	177.9	176.1	169.9	176.4	167.6	164.0	153.1
AUG.	173.5	173.9	174.8	170.2	175.7	182.2	176.4	177.9	176.0	169.9	177.2	167.6	164.0	153.1

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	27	37	17	24	11	114	78	20	98	80	29	12	75
134.5	132.2	135.4	140.1	140.2	133.1	137.3	136.9	136.2	131.4	135.9	134.3	129.2	128.7
140.7	138.9	144.2	148.6	146.9	140.9	145.8	145.3	148.7	140.7	144.3	142.3	138.5	135.3
150.1	151.5	155.0	162.2	163.3	152.1	156.8	156.2	163.1	151.1	154.5	158.7	151.4	144.3
160.6	162.4	163.2	170.7	171.7	158.0	165.5	164.7	170.6	159.5	162.5	166.8	158.6	150.5
171.0	169.5	170.8	178.6	178.9	164.8	172.3	172.0	177.4	164.4	170.3	171.6	164.1	157.2
176.2	171.9	174.6	180.6	180.9	169.5	174.4	173.8	181.8	168.2	173.3	175.2	168.1	159.6
176.2	171.9	174.9	180.9	181.0	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	159.6
176.2	171.9	174.9	180.9	181.0	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	161.5
176.2	172.3	174.9	181.6	181.0	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	161.5
176.2	172.3	175.1	182.4	181.0	171.4	177.2	176.8	181.8	168.2	173.8	175.2	168.1	161.5
178.7	172.3	175.4	182.4	181.0	171.4	177.2	176.8	181.8	168.2	173.8	175.2	168.1	161.5
178.7	172.3	175.4	184.5	180.6	171.4	177.2	176.8	181.8	168.2	174.4	175.2	168.1	161.7
178.7	172.3	176.0	184.8	180.6	171.4	177.3	176.8	181.8	168.9	174.8	175.2	168.1	162.7

TABLE 2

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## MEN

S.I.C. Orders		I	II	III	IV	V	VI			VII	VIII	IX	X	
	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	61	94	20	19	45	111	16	79	69	24	6	31	8
Annual														
1954	134.5	133.1	134.1	135.2	136.3	135.5	136.4	137.7	136.4	133.7	135.2	129.9	135.2	131.5
1955	143.4	140.7	143.9	144.9	145.4	146.8	146.2	147.8	145.9	142.4	144.6	137.5	142.0	138.2
1956	154.8	151.1	157.9	154.6	154.7	160.6	157.3	159.2	156.1	154.1	155.4	149.9	148.9	142.8
1957	162.5	158.7	166.4	161.5	163.4	168.8	165.2	166.8	164.7	160.7	163.2	157.3	156.1	148.2
1958	168.8	168.2	169.8	166.7	168.4	176.2	171.1	172.7	170.8	164.8	169.8	162.5	161.0	152.3
Monthly 1959														
JAN.	172.6	173.9	174.7	169.3	173.3	177.9	176.0	177.9	175.5	169.1	173.5	165.5	163.2	152.7
FEB.	173.1	173.9	174.7	169.4	173.3	178.4	176.2	177.9	175.8	169.1	174.0	166.0	163.4	152.7
MAR.	173.4	173.9	174.8	169.9	173.3	182.5	176.2	177.9	175.8	169.1	174.0	166.2	163.5	153.0
APR.	173.4	173.9	174.8	170.3	173.4	182.5	176.3	177.9	175.9	169.1	174.0	166.4	163.8	153.0
MAY	173.5	173.9	174.8	170.3	173.4	182.5	176.3	177.9	175.9	169.1	174.0	166.4	164.4	153.0
JUNE	173.5	173.9	174.8	170.3	173.4	182.2	176.3	177.9	175.9	169.1	174.0	166.6	164.4	153.0
JULY	173.5	173.9	174.8	170.4	173.4	181.5	176.3	177.9	175.9	169.1	174.0	166.6	164.2	153.0
AUG.	173.7	173.9	174.8	170.6	173.4	182.2	176.2	177.9	175.9	169.1	174.6	166.6	164.2	153.0

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	15	35	18	23	11	135	92	23	111	65	34	5	41
132·6	129·3	134·3	139·8	139·2	132·3	137·3	136·9	136·2	130·8	134·7	134·3	130·2	128·4
138·8	135·7	143·1	148·1	145·8	140·0	145·8	145·3	148·7	140·5	143·6	142·3	139·5	135·1
154·4	147·7	153·7	160·9	162·0	151·0	156·8	156·2	163·1	150·9	153·9	158·6	151·6	143·2
162·3	157·0	162·0	169·4	170·9	156·7	165·3	165·1	170·6	158·1	161·9	166·8	160·0	148·4
169·0	163·3	169·7	177·1	177·9	163·7	172·3	172·0	177·4	163·2	169·7	171·5	165·0	157·1
174·9	165·1	173·6	179·2	179·9	170·5	174·4	173·8	181·8	168·1	172·6	175·2	169·6	160·6
174·9	165·1	173·8	179·4	180·0	170·5	177·2	176·8	181·8	168·1	172·9	175·2	169·6	160·6
174·9	165·1	173·8	179·4	180·0	170·5	177·2	176·8	181·8	168·1	172·9	175·2	169·6	162·3
174·9	165·4	173·8	180·1	180·0	170·5	177·2	176·8	181·8	168·1	172·9	175·2	169·6	162·3
174·9	165·4	173·8	180·7	180·0	171·6	177·2	176·8	181·8	168·1	173·3	175·2	169·6	162·3
174·9	165·4	174·1	180·7	180·0	171·6	177·2	176·8	181·8	168·1	173·3	175·2	169·6	162·3
176·3	165·4	174·1	182·7	179·4	171·5	177·2	176·8	181·8	168·1	173·8	175·2	169·6	162·6
176·3	165·4	174·6	183·2	179·4	171·5	177·3	176·8	181·8	168·8	174·1	175·2	169·6	163·7



TABLE 3

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## WOMEN

S.I.C. Orders		I	III	IV	V	VI		VII	VIII	IX	X		
	Total All Industries	Agriculture, Forestry and Fishing	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	31	14	14	9	55	1	49	19	29	8	123	48
Annual													
1954	135.8	133.8	134.4	140.2	149.0	148.6	135.3	149.5	153.8	140.7	130.5	136.8	131.9
1955	143.6	140.9	141.9	150.0	163.2	159.8	147.6	160.7	161.9	150.1	139.3	143.3	138.0
1956	154.3	151.2	149.2	161.4	172.4	172.2	159.6	173.2	176.0	161.8	156.4	149.7	142.8
1957	161.7	159.3	156.1	169.5	181.2	181.5	167.6	182.4	183.5	170.5	161.9	156.5	148.3
1958	168.3	169.0	162.3	175.5	188.3	188.3	173.0	189.3	187.2	178.7	167.2	161.0	152.4
Monthly— 1959													
JAN.	171.4	174.8	164.6	181.0	194.4	193.5	178.4	194.4	191.3	183.5	170.5	162.8	152.8
FEB.	171.5	174.8	164.6	181.0	194.4	193.6	178.4	194.6	191.3	184.3	171.3	163.0	152.8
MAR.	172.1	174.8	164.6	181.0	194.4	193.7	178.4	194.6	191.3	184.3	171.3	163.0	152.8
APR.	172.2	174.8	166.9	181.2	194.4	193.8	178.4	194.7	191.3	184.3	171.4	163.1	152.8
MAY	172.3	174.8	166.9	181.2	194.4	193.8	178.4	194.7	191.3	184.3	171.4	163.7	152.8
JUNE	172.3	174.8	166.9	181.8	194.4	193.8	178.4	194.7	191.3	184.3	171.4	163.7	152.8
JULY	172.4	174.8	167.1	181.8	194.4	193.8	178.4	194.7	191.3	184.3	171.4	163.6	152.8
AUG.	173.0	174.8	167.4	181.8	194.4	193.7	178.4	194.7	191.3	185.1	171.4	163.6	152.8

XI	XII	XIII	XIV	XV	XVI	XVII		XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
5	95	50	9	26	17	1	1	30	161	2	47	255
146.6	134.5	139.2	144.0	145.4	135.5	141.7	141.7	133.9	138.5	140.0	128.6	128.8
153.8	141.6	147.8	154.0	152.9	144.1	162.0	162.0	145.2	146.0	145.7	137.9	135.3
166.8	154.5	159.0	176.5	170.2	155.6	177.5	177.5	158.3	156.0	166.4	150.7	144.8
176.0	166.8	166.8	185.6	177.7	162.6	189.4	189.4	163.1	163.9	173.9	157.9	150.2
185.7	174.4	174.2	195.1	184.7	171.1	199.0	199.0	165.3	171.6	175.6	162.7	156.6
190.6	177.4	177.8	196.6	187.0	176.4	201.6	201.6	169.5	174.8	175.6	167.2	158.5
190.6	177.4	178.5	196.6	187.5	176.4	206.2	206.2	169.5	174.8	175.6	167.2	158.5
190.6	177.4	178.5	196.6	187.5	176.4	206.2	206.2	169.5	175.0	175.6	167.2	160.6
190.6	177.9	178.5	198.2	187.5	176.4	206.2	206.2	169.5	175.0	175.6	167.2	160.6
190.6	177.9	178.5	198.7	187.5	178.1	206.2	206.2	169.5	175.0	175.6	167.2	160.6
190.6	177.9	178.7	198.7	187.5	178.1	206.2	206.2	169.5	175.0	175.6	167.2	160.6
194.6	177.9	178.7	202.5	186.9	178.0	206.2	206.2	169.5	175.6	175.6	167.2	160.6
194.6	177.9	180.1	202.5	186.9	178.0	206.2	206.2	169.5	176.2	175.6	167.2	162.0

TABLE 4

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

MEN—1956

		I	II	III	IV	V	VI			VII	VIII	IX	X		
	S.I.C. Orders	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Metaliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	61	94	20	19	45	111	16	79	69	24	6	31	8	
1956															
JAN.	147.3	141.8	147.3	148.2	147.5	152.4	148.2	149.6	140.7	144.9	149.8	147.6	145.7	138.7	
FEB.	150.5	148.7	157.4	149.3	152.1	152.1	148.6	149.6	147.9	153.2	151.0	149.0	146.5	138.7	
MAR.	152.7	150.6	158.7	150.7	153.6	154.1	158.7	161.1	158.1	153.8	153.6	149.0	146.6	138.7	
APR.	154.1	150.6	158.9	153.8	154.5	161.4	158.9	161.1	158.3	155.2	153.6	149.9	146.7	138.7	
MAY	155.7	150.6	159.1	156.3	154.8	162.4	159.0	161.1	158.3	155.2	154.6	149.9	149.1	144.7	
JUNE	156.0	150.6	159.1	156.4	155.2	164.0	159.0	161.1	158.4	155.2	155.3	149.9	149.3	144.7	
JULY	156.5	150.6	159.1	156.4	155.3	163.5	159.0	161.1	158.4	155.2	157.2	150.6	149.9	144.7	
AUG.	156.6	150.6	159.1	156.7	156.0	163.5	159.2	161.1	158.7	155.2	157.2	150.6	150.0	144.7	
SEPT.	156.7	150.6	159.1	156.7	156.4	163.1	159.2	161.1	158.7	155.2	157.6	150.6	150.1	144.9	
OCT.	157.2	156.2	159.1	156.7	156.7	163.6	159.3	161.1	158.8	155.2	157.6	150.5	150.1	145.1	
NOV.	157.4	156.2	159.1	156.7	157.0	163.6	159.3	161.1	158.9	155.2	158.4	150.5	150.5	145.1	
DEC.	157.6	156.2	159.1	156.7	157.0	164.0	159.3	161.1	158.9	155.2	158.4	150.5	152.7	145.1	
Annual Average 1956	154.8	151.1	157.9	154.6	154.7	160.6	157.3	159.2	156.1	154.1	155.4	149.9	148.9	142.8	

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	15	35	18	23	11	135	92	23	111	65	34	5	41
148.6	141.2	147.4	154.0	154.1	148.9	148.6	147.9	156.2	144.3	148.2	151.8	143.5	138.8
148.6	141.3	147.4	154.6	154.1	148.9	151.6	151.1	163.5	148.0	148.7	152.5	143.5	139.1
148.6	141.7	149.0	155.9	154.1	150.0	152.2	151.1	163.7	148.1	151.2	156.9	143.5	141.4
148.6	145.0	152.8	157.7	154.5	150.4	152.6	151.1	163.7	149.8	153.0	159.9	154.1	141.5
151.2	145.2	155.6	161.0	162.7	150.5	159.6	159.1	163.7	151.4	153.4	159.9	154.1	141.9
151.2	146.1	155.8	162.3	162.8	150.5	159.6	159.1	163.7	151.4	153.4	159.9	154.1	145.1
158.0	148.2	155.9	164.6	165.6	150.5	159.6	159.1	163.7	152.5	156.0	159.9	154.5	145.1
159.5	148.2	155.9	164.6	166.6	152.5	159.6	159.1	163.7	152.5	156.0	159.9	154.5	145.1
159.5	153.5	155.9	164.6	166.7	152.5	159.6	159.1	163.7	152.5	156.0	159.9	154.5	145.1
159.5	153.6	156.0	163.9	167.5	152.5	159.6	159.2	163.7	152.7	156.5	160.5	154.5	145.1
159.8	154.1	156.2	163.9	167.5	152.5	159.6	159.2	163.7	153.9	156.5	161.1	154.5	145.1
159.8	154.1	156.2	163.9	167.8	152.5	159.6	159.2	163.7	154.0	157.3	161.1	154.5	145.5
154.4	147.7	153.7	160.9	162.0	151.0	156.8	156.2	163.1	150.9	153.9	158.6	151.6	143.2



TABLE 5

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

MEN—1957

		I	II	III	IV	V	VI		VII	VIII	IX	X		
S.I.C. Orders	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	61	94	20	19	45	111	16	79	69	24	6	31	8
1957														
JAN.	157.8	156.2	159.2	156.7	157.0	164.0	159.3	161.1	158.9	156.9	158.4	152.0	152.9	145.1
FEB.	158.4	156.2	159.2	157.5	157.5	164.5	159.5	161.1	159.1	157.0	158.9	152.0	153.3	145.1
MAR.	159.7	156.9	167.6	157.5	158.3	165.3	159.6	161.1	159.2	157.0	160.2	152.0	153.7	145.3
APR.	160.2	157.3	167.7	160.4	164.3	165.3	159.6	161.1	159.3	157.0	160.2	152.0	154.2	145.6
MAY	161.3	157.3	167.7	162.8	164.7	165.3	160.9	161.1	159.7	161.2	160.2	156.8	154.8	145.6
JUNE	163.5	157.3	167.8	163.2	165.1	167.3	168.7	171.0	168.1	161.8	163.9	158.7	155.5	145.6
JULY	164.0	157.3	167.8	163.2	165.4	167.4	168.7	171.0	168.2	161.8	163.9	158.7	155.9	145.6
AUG.	164.5	157.3	167.9	163.2	165.4	168.3	168.8	171.0	168.3	163.1	165.0	160.0	158.0	152.2
SEPT.	164.7	157.3	167.9	163.2	165.7	174.7	169.2	171.0	168.8	163.1	165.3	160.5	158.4	152.2
OCT.	165.1	157.3	167.9	163.2	165.9	174.2	169.3	171.0	168.9	163.1	166.9	161.2	158.5	152.2
NOV.	165.9	166.3	168.0	163.2	165.9	174.2	169.3	171.0	169.0	163.2	167.3	161.2	158.8	152.2
DEC.	164.8	167.2	168.0	164.2	166.1	174.7	169.3	171.0	169.0	163.2	168.2	162.3	159.1	152.2
Annual Average 1957	162.5	158.7	166.4	161.5	163.4	168.8	165.2	166.8	164.7	160.7	163.2	157.3	156.1	148.2

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	15	35	18	23	11	135	92	23	111	65	34	5	41
159.8	154.3	157.1	164.7	169.0	152.5	159.6	159.2	163.7	154.0	157.3	161.8	154.5	145.5
159.8	155.3	157.2	164.9	169.0	152.5	162.7	162.5	163.7	154.0	157.3	163.1	154.5	145.5
159.8	155.9	157.6	164.9	169.0	152.5	162.7	162.5	167.3	156.4	157.8	163.1	154.5	145.5
159.8	155.9	157.6	165.6	169.1	152.8	162.8	162.5	169.3	156.8	159.0	163.5	154.5	145.5
159.8	156.5	161.8	167.8	169.1	153.2	163.1	162.5	172.8	157.3	159.9	166.6	162.7	145.5
159.8	156.5	163.4	169.1	169.3	158.5	167.5	167.4	172.8	158.7	161.6	168.2	162.7	145.5
161.5	156.9	164.0	169.7	172.4	159.3	167.5	167.5	172.9	159.3	164.1	168.9	162.7	148.6
161.5	158.5	164.1	169.8	172.4	159.3	167.5	167.5	173.0	160.1	164.1	169.2	162.7	150.1
166.2	158.5	165.0	172.3	172.4	159.9	167.5	167.5	173.0	160.1	164.4	169.2	162.7	150.1
166.2	158.7	165.4	174.5	172.4	159.9	167.5	167.5	173.0	160.3	165.2	169.2	162.7	150.9
166.2	158.7	165.6	174.5	172.4	159.9	167.5	167.5	173.0	160.3	165.2	169.2	162.7	154.3
167.6	158.7	165.6	174.7	173.7	159.9	167.5	167.5	173.0	160.3	166.4	169.2	162.7	154.3
162.3	157.0	162.0	169.4	170.9	156.7	165.3	165.1	170.6	158.1	161.9	166.8	160.0	148.4

TABLE 6

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## WOMEN—1956

		I	III	IV	V	VI		VII	VIII	IX	X		
S.I.C. Orders	Total All Industries	Agriculture, Forestry and Fishing	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	31	14	14	9	55	1	49	19	29	8	123	48
1956													
JAN.	148.3	141.8	143.8	153.0	163.2	161.7	149.7	162.7	165.9	157.1	155.2	146.3	138.5
FEB.	149.0	148.4	144.4	159.0	163.2	163.2	149.7	163.1	176.3	157.3	156.4	146.9	138.5
MAR.	152.0	150.6	144.6	159.9	174.2	173.7	161.6	174.7	176.3	159.0	156.4	147.2	138.5
APR.	152.8	150.6	146.8	160.9	174.2	174.0	161.6	175.1	177.0	159.0	156.4	147.2	138.5
MAY	153.8	150.6	150.8	161.1	174.2	174.0	161.6	175.1	177.0	160.5	156.4	150.3	145.0
JUNE	154.6	150.6	151.0	162.2	174.2	174.0	161.6	175.1	177.0	160.7	156.4	150.5	145.0
JULY	155.8	150.6	151.0	162.4	174.2	174.0	161.6	175.3	177.0	163.8	156.5	150.9	145.0
AUG.	155.9	150.6	151.6	162.9	174.2	174.3	161.6	175.3	177.0	163.8	156.5	150.9	145.0
SEPT.	156.6	150.6	151.6	163.4	174.2	174.3	161.6	175.3	177.0	164.4	156.5	151.0	145.0
OCT.	157.0	156.7	151.6	163.9	174.2	174.5	161.6	175.5	177.0	164.4	156.5	151.0	145.0
NOV.	157.4	156.7	151.6	164.2	174.2	174.5	161.6	175.5	177.0	165.7	156.5	151.1	145.0
DEC.	157.8	156.7	151.6	164.2	174.2	174.5	161.6	175.5	177.0	165.7	156.5	153.2	145.0
Annual Average 1956	154.3	151.2	149.2	161.4	172.4	172.2	159.6	173.2	176.0	161.8	156.4	149.7	142.8

XI	XII	XIII	XIV	XV	XVI	XVII		XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
5	95	50	9	26	17	1	1	30	161	2	47	255
161-0	149-3	153-4	169-0	165-2	151-7	165-8	165-8	152-8	150-5	160-5	141-9	138-8
161-0	149-6	153-4	169-7	165-2	151-7	170-3	170-3	152-8	150-6	160-5	141-9	138-8
161-0	150-0	155-6	171-0	165-2	153-7	170-3	170-3	152-8	153-2	160-5	152-2	142-9
161-0	151-5	156-7	175-2	165-3	154-8	170-3	170-3	159-3	155-1	168-4	152-2	142-9
162-7	151-8	158-8	175-6	168-0	154-2	181-6	181-6	159-3	155-8	168-4	152-2	143-5
162-7	151-8	161-3	176-7	168-0	154-2	181-6	181-6	159-3	155-9	168-4	152-6	145-9
167-6	153-1	161-3	180-6	173-1	154-2	181-6	181-6	159-3	157-8	168-4	152-6	147-4
172-5	153-1	161-3	180-6	173-8	158-6	181-6	181-6	159-3	157-8	168-4	152-6	147-4
172-5	160-1	161-3	180-6	173-9	158-6	181-6	181-6	159-3	157-8	168-4	152-6	147-4
172-5	160-3	161-3	179-8	174-7	158-6	181-6	181-6	159-3	158-7	168-4	152-6	147-4
173-6	161-8	162-0	179-8	174-7	158-6	181-6	181-6	163-1	158-7	168-4	152-6	147-4
173-6	161-8	162-0	179-8	174-7	158-6	181-6	181-6	163-1	159-5	168-4	152-6	147-5
166-8	154-5	159-0	176-5	170-2	155-6	177-5	177-5	158-3	156-0	166-4	150-7	144-8



TABLE 7

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## WOMEN—1957

S.I.C. Orders		I	III	IV	V	VI		VII	VIII	IX	X		
	Total All Industries	Agriculture, Forestry and Fishing	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	31	14	14	9	55	1	49	19	29	8	123	48
1957													
JAN.	157.9	156.7	151.6	164.3	174.2	174.5	161.6	175.5	177.7	165.8	156.5	153.3	145.0
FEB.	158.3	156.7	151.9	164.7	174.2	174.5	161.6	175.6	178.5	166.5	156.5	153.6	145.0
MAR.	158.7	158.0	151.9	164.7	174.2	174.5	161.6	175.6	178.5	167.7	156.5	154.1	145.4
APR.	159.0	158.0	156.5	169.4	174.2	174.7	161.6	175.8	178.5	167.7	156.1	155.0	145.7
MAY	160.5	158.0	157.1	169.4	174.2	176.5	161.6	176.5	185.4	167.7	162.4	155.4	145.7
JUNE	161.8	158.0	157.2	170.4	186.2	185.8	171.9	186.8	185.4	170.6	162.4	155.5	145.7
JULY	162.7	158.0	157.6	171.4	186.2	185.8	171.9	186.8	185.4	170.6	163.5	155.6	145.7
AUG.	163.4	158.0	157.6	171.4	186.2	185.9	171.9	186.8	186.4	171.2	165.3	158.6	152.3
SEPT.	163.6	158.0	157.6	171.5	186.2	186.1	171.9	187.1	186.4	171.2	165.4	159.0	152.3
OCT.	164.3	158.0	157.6	171.8	186.2	186.4	171.9	187.4	186.4	174.8	166.0	158.9	152.3
NOV.	165.1	166.2	157.6	171.8	186.2	186.4	171.9	187.4	186.4	175.4	166.0	159.3	152.3
DEC.	165.5	168.0	158.5	172.7	186.2	186.4	171.9	187.4	186.4	176.9	166.7	159.6	152.3
Annual Average 1957	161.7	159.3	156.1	169.5	181.2	181.5	167.6	182.4	183.5	170.5	161.9	156.5	148.3

XI	XII	XIII	XIV	XV	XVI	XVII		XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
5	95	50	9	26	17	1	1	30	161	2	47	255
173-6	162-2	162-4	180-7	175-3	158-6	181-6	181-6	163-1	159-5	168-4	152-6	147-5
173-6	165-7	162-4	180-7	175-7	158-6	185-7	185-7	163-1	159-5	171-1	152-6	147-5
173-6	166-5	162-5	180-7	175-7	158-6	185-7	185-7	163-1	160-3	171-1	152-6	147-5
173-6	166-5	162-6	181-8	175-7	158-9	185-7	185-7	163-1	160-5	171-1	152-6	147-5
173-6	166-5	166-4	182-1	175-8	159-9	185-7	185-7	163-1	161-6	175-6	160-5	149-0
173-6	166-5	167-3	183-9	175-8	164-1	192-6	192-6	163-1	164-2	175-6	160-5	149-0
175-0	167-2	167-7	184-6	179-8	165-5	192-6	192-6	163-1	166-3	175-6	160-5	150-3
175-0	167-9	167-7	184-6	179-8	165-5	192-6	192-6	163-1	166-3	175-6	160-5	151-0
179-0	167-9	170-2	188-5	179-8	165-5	192-6	192-6	163-1	166-5	175-6	160-5	151-0
179-0	168-1	170-3	193-0	179-8	165-5	192-6	192-6	163-1	166-8	175-6	160-5	152-6
179-0	168-1	171-0	193-0	179-8	165-5	192-6	192-6	163-1	166-8	175-6	160-5	154-6
183-6	168-1	171-0	193-4	179-9	165-5	192-6	192-6	163-1	167-9	175-6	160-5	154-6
176-0	166-8	166-8	185-6	177-7	162-6	189-4	189-4	163-1	163-9	173-9	157-9	150-2



# Wages, Productivity and the Level of Employment: More on the "Wage Drift"<sup>1</sup>

An addition to recent British literature on the determinants of the general level of wages perhaps takes some justifying. Several attempts have now been made by econometric and statistical methods to adduce a systematic relationship between wage-movements, employment fluctuations, output trends, and other factors (economic or non-economic) which may influence the determination of wages.<sup>2</sup> The present writer finds these terribly impressive—not least, perhaps, because he does not fully understand the particular techniques involved. But he also remains rather unconvinced by them.

One reason for this is that to construct a "model," say of relationships between general wage-changes on the one hand and changes in unemployment and living-costs on the other, which happens to fit fairly well with such actual movements in these things as are recorded by the available public statistics on them, does not seem to prove that it is also the *only* model which could do so. The model may show that 4 could be made up of 2 plus 2: but it does not show that, in this particular case, it is not in fact composed of 3 plus 1, 4 plus 0, 5 minus 1—or even of 2 squared. And granted that several alternative models might fit the apparent statistical facts equally well, the selection of the most appropriate explanation of wage-trends (or rather, explanations, since this writer is not so naive as to think it likely that any one model will prove finally convincing)

<sup>1</sup>The help of several members of the ILO's Statistics and Economic Divisions with, and the comments of Professors John T. Dunlop and Harry Johnson upon, an early draft of this paper should be appreciated—and the (necessary) absolutions from responsibility for the end-product attached.

<sup>2</sup>See particularly A. W. Phillips, "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957" (*Economica*, Nov., 1958), L. A. Dicks-Mireaux and J. C. R. Dow, "The Determinants of Wage Inflation: United Kingdom, 1946-56" (*J.R.S.S.*, Vol. 122, Part 2, 1959), and L. R. Klein and J. R. Ball, "Some Econometrics of the Determination of Absolute Prices and Wages" (*Economic Journal*, Sept., 1959).



seems to require much more knowledge of *other* facts—those of the actual processes of collective bargaining and the detailed mechanisms of wage-fixing.

But in the second place, the statistical facts from which these models have been derived seem of a somewhat shaky kind—or of a sort that cannot be properly related to each other as they stand. Thus, the percentage of registered unemployed is commonly taken as an indicator of the relative surplus or scarcity of labour. But it is very far from being an accurate one: and its effect does not seem significantly modified by being taken against the record of notified vacancies, instead of in isolation.<sup>1</sup> Nor is the fluctuation of employment, in the sense of the number on employers' payrolls or nominally possessed of jobs, necessarily much better as an index to the labour market's state.<sup>2</sup> But in any case, these statistics stand for *all* employees. While the indices of wages which have been compared with them represent the pay of manual workers only. And it is known that their employment experience has differed markedly from that of the salaried people who compose about a third of the working population<sup>3</sup>—but for whom no analagous pay-statistics are available.

A similar deficiency affects calculations of productivity trends, in so far as these have been compared with wage-movements. Productivity indices have generally related to average output per employee. So again they do not necessarily indicate the trend of wage-earners' productivity: it is quite possible, for instance, for average productivity to fall while that of manual workers continues to rise—indeed, this almost certainly happened in manufacturing industry at times during 1957/58. And finally, one of the two wage-indices available—that of earnings—relates to less than half the total labour force, and is in any case of a very different statistical nature to the other, of wage-rates, though it is again often compared with the latter.

<sup>1</sup>See Klein and Ball, *loc. cit.*

<sup>2</sup>For a recent critique of current employment (and unemployment) statistics, see "Employment Fluctuations, Labour Supply and Bargaining Power" (*Manchester School*, May, 1959) by the present writer.

<sup>3</sup>*Ibid.*, pp. 187-189.

All this is not to say, of course, that any one of these indices—of employment or unemployment, productivity or wages—fails to respond in a significant way to the broad stream of economic events. But in the present context, it is the relation between them which is important. The comparative influence of employment fluctuations, productivity trends and other factors in the determination of wages will be judged by relatively small divergences between the available indices. And one is never quite sure whether such movements may not represent the effect of a sector which is excluded by one indicator but included by another—or even, of the particular way in which one index or another is compiled.

To subject material of this kind to elaborate mathematical techniques in the hope that it will, untreated otherwise, yield firm conclusions amounts to making an econom-embroidered purse out of a statistical sow's ear. At any rate, one justification of the present study is that from information recently available it now seems possible to derive statistical series for employment, productivity and wages which are comparable in their nature and which apply in each case to an identical major sector of the British economy.

This limits the evidence to manufacturing industry in the main. But manufacturing operatives—of whom there are over 7 million, and who are this study's special subject—are the majority of British wage-earners and comprise some three-quarters of those for whom a regular census of earnings is made. And while the following analysis does not necessarily support any particular theory of "wage leadership" in the usual sense of that term, it will suggest that wage-movements in manufacturing industry are critical to those in the economy at large. It is in any case evident that the wage-agreements, say of the Confederation of Shipbuilding and Engineering Unions, which represents over two million manufacturing operatives, have often played a dominating role in national wage-trends. And it also happens that statistical data for manufacturing is in general more accurate than that for other sectors of the economy.

The data used here also limits exact enquiry to the years since 1951—and particularly to the period 1951-58.<sup>1</sup> But this period includes two booms and two (or three, depending how one looks at them) recessions, during which there were very considerable swings in the demand for manufacturing labour. In terms of the index which will be used here, for instance, the employment of manufacturing operatives rose by 11 per cent. from the low point of 1952 to its 1955 peak, and then fell again by over 7 per cent. from that level. Moreover, the period can be studied in some detail ; and we can fill it out by reference to British wage-movements in other years, and by some comparison with foreign experience.

### *Employment and Productivity*

As an index of employment, we shall take the total hours worked by manufacturing operatives. The reasons for preferring this, and the method by which it may be estimated, have perhaps been sufficiently shown elsewhere.<sup>2</sup> And given this, it is easy to estimate also the trend of manufacturing operatives' productivity. The two estimates can be made at quarterly intervals for the period here examined, and the detailed result is depicted pictorially in the Graphs given later.<sup>3</sup> But for present purposes, it is the connection between employment and

<sup>1</sup>This data cannot be derived for dates before mid-1951, because the regular official enquiry into short-time and overtime (which is used here to help estimate employment trends) was only then started. Similarly, it cannot be carried much beyond mid-1958, because at that time the Index of Manufacturing Production was revised. The new Index shows much the same *fluctuation* as the old, and can be carried back to 1954 : but relative to the previous one it has a slight upward bias, which is nevertheless big enough in the present context to make comparisons of years before and after 1954 uncertain if the revised Index is used for the latter part of the period. And finally, the official Index of Wage-Rates had a slight revision (arising from a reclassification of employment groups) at the beginning of 1959 which altered its movement at that time.

<sup>2</sup>See "Employment Fluctuations, Labour Supply and Bargaining Power" (*loc. cit.*), and particularly Table I of that study.

<sup>3</sup>They can, of course, be extended to dates since 1958, but subject to the reservation as to the effect of revisions in the Index of Manufacturing Production, etc. already mentioned. Incidentally, the Graphs of Operative-hours and Productivity represent these things as seasonally-adjusted. The official Index of Manufacturing Production is not seasonally-adjusted for dates before 1954, and this has been done by the writer.

productivity fluctuations which is important, and this can be adequately demonstrated by annual comparisons. As follows :

**TABLE I**  
CHANGES IN EMPLOYMENT AND PRODUCTIVITY OF MANUFACTURING  
OPERATIVES, YEAR-BY-YEAR

	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58
Change in total operative-hours worked, %	-2.0	2.1	3.3	1.8	-0.9	-1.2	-2.6
Change in output per operative-hour, %	-3.5	3.4	4.9	4.7	-1.0	3.9	0.3

It obvious that productivity falls off sharply when a decline in employment sets in. But otherwise, the level and trend of employment seem to make little difference to productivity, which continues to grow, once this temporary setback has been passed, at much the same rate whether employment is rising, stable, or tending moderately downwards. This point is brought out most clearly if one abstracts from Table I those quarters when the trends of output or employment were actually changing direction (i.e., the first quarters of 1953, 1956, 1957 and 1958) which otherwise somewhat confuse the picture. As follows again : <sup>1</sup>

**TABLE II**  
TRENDS OF MANUFACTURING OPERATIVES' EMPLOYMENT AND  
PRODUCTIVITY

	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58
Change in total operative-hours worked, %	-2.2	2.8	3.3	1.8	-1.4	-0.9	-3.5
Change in output per operative-hour, %	-3.5	4.5	4.9	4.7	-1.4	4.2	0.0

<sup>1</sup>So that for 1952/53, 1955/56, 1956/57 and 1957/58 the comparison is for the last three quarters of each year only. Since data on operative-hours is only available at two intervals in 1951, the comparison for 1951/52 is also confined to the relevant quarters.



Thus, productivity fell heavily at the onset of the 1952 and 1956 recessions, and stagnated in face of the renewed employment decline of 1958. But otherwise, it has tended to grow at a pretty steady pace of between 4 and 5 per cent. a year irrespective of the level of employment—recovering to this rate in 1957, when the falling trend of employment levelled out.

Two or three consequences of this analysis are interesting. First, there seems to have been no tendency for productivity growth to flatten out near the point (1955) of full employment—although it has often been suggested that this would happen, so that less than full employment would be compensated in terms of output by higher productivity. Indeed, the reverse may be the case if productivity is reckoned for all employees, instead of for operatives alone. Since the ratio of staff to operatives in manufacturing industry is rising, its normal rate of productivity growth is rather less than the yearly  $4\frac{1}{2}$  per cent. suggested by Table II if the former are taken into account. But the staff/operative ratio has also risen fastest in recessions and slowest when employment has been higher.<sup>1</sup> So that per head of all manufacturing employees, productivity growth may actually be fastest at near-full employment.

Secondly, there seems to have been no unusual growth of productivity in periods of recovery from a recession—1952/53 and 1956/57—although it has again often been suggested that this would occur, and would thus make up for the pause in productivity growth (and loss of output) occasioned by the recession itself. Which encourages the proposal that had there been no employment recessions in Britain since 1951, the productivity of manufacturing operatives would in fact have risen at some  $4\frac{1}{2}$  per cent. over the period to 1958—instead of 2 per cent., as actually occurred.

But if full and steady employment maximise manufacturing output and productivity growth, that they by no means necessarily minimise costs can also be shown : <sup>2</sup>

<sup>1</sup>See "Employment Fluctuations, Labour Supply and Bargaining Power" (*loc. cit.*), particularly Table II thereof.

<sup>2</sup>Reckoned, of course, by comparing the productivity estimates of Table I with the changes in reported average earnings shown—the latter reduced to annual averages. What the changes in *total* unit costs might have been can perhaps be guessed (on alternative assumptions about the movement of salaries, for lack of analagous salary-data) from the foregoing remarks above.

**TABLE III**  
**CHANGES IN WAGE-COSTS IN MANUFACTURING, YEAR-BY-YEAR**

	1951/52	1952/53	1953/54	1954/55	1955/56	1956/57	1957/58
Increase in average hourly earnings, %	9.1	5.4	5.7	8.4	8.6	6.4	3.4
Increase in wage-cost per unit of output, %	13.1	2.0	0.8	3.6	9.9	2.3	3.1

Outstandingly, the biggest increases in wage-costs have thus occurred in periods when employment declines set off a temporary fall in productivity. But equally, the smallest increase of wage-costs happened when productivity was rising normally but employment was still short of full. In each case, however, this was partly because the movement of wages reacted only after some lag to changed trends of employment and output—so that earnings continued to rise at a boom rate in the recession years of 1952 and 1956, but in the recovery of 1953/54 had not yet accelerated their advance beyond the slowed pace to which they had lagged over 1952/53.

In the time of writing's context, this raises an obvious question. Indications are that when data for 1959 is available, it will be found to resemble 1953/54. But if productivity is permitted to resume its normal rate of growth without further interruption by employment cuts, while at the same time employment is held back from its former peak, would the advance of earnings be restrained to near its 1958 level? Or would it ultimately accelerate, again to much out-distance manufacturing productivity's normal growth? Which brings us back to the determination of wages.

#### *Wages : and the "Wage-Drift"*

We have two measures of manufacturing wage-movements: the earnings figures already referred to, and an official weekly wage-rate Index which can best be taken as indicating the level of "standard" rates of wages. Which is more relevant for present purposes?

This, of course, is not just a statistical question. In Britain between 1951 and 1958, the average hourly earnings of manufacturing operatives rose about 1 per cent. per annum faster than did their average standard (or "trade union") rate. But in other countries, too, a difference in the increase of actual wages and of agreed or "contractual" wage-rates has been so widespread in recent years that it has sometimes created considerable problems of wage policy. Countries like Sweden, which have applied centralised systems of wage-fixing to contain inflation, have been embarrassed by a "wage-drift" of actual wage-increases over and above contractual pay-advances. In other cases—like that of Western Germany—employers' federations have thought it necessary to urge their member-firms not to concede wage-increases beyond those they have agreed with the trade unions.

A popular explanation of the "wage-drift" is that earnings rise because of increased effort and overtime. But this cannot be the whole story since—as will be shown later—it is quite possible to have a "positive wage-drift" when output and working hours are falling, and a "negative wage-drift" under opposite conditions.<sup>1</sup>

An explanation commonly accepted is that when profits are high, employers are willing to pay more than the agreed wage-rates.<sup>2</sup> In Sweden, however, a detailed industrial comparison found no connection between "excess profits" and wage-drift.<sup>3</sup> The same study, however, *did* discover a correlation between unfilled vacancies in particular industries and wage-drift, thus suggesting the latter to represent additions to agreed wage-rates made to attract labour. But one comparison of recent changes in wage-rates and earnings in various British industries has shown no relationship between different degrees of wage-drift and of labour surplus or scarcity.<sup>4</sup>

<sup>1</sup>See Table V, particularly for 1953, 1954—and 1958.

<sup>2</sup>This explanation was apparently accepted by the British Cohen Council on Prices, Productivity Incomes (*First Report*, 1957, paras. 82 and 88), which indeed seems to have considered the existence of a "wage-drift" significant evidence of inflationary pressure.

<sup>3</sup>B. Hansen and G. Rehn: "On Wage Drift" (In *Economic Essays in Honour of Eric Lindahl*, Stockholm, 1956).

<sup>4</sup>L. A. Dicks-Mireaux: "Wage-Earnings and Wage-Rates, 1954-57" (*London and Cambridge Economic Bulletin*, Sept., 1958).

Other explanations of the wage drift associate it with methods of wage-fixing. Thus a study by the present writer of British wage-movements from 1938 to 1954 suggested that in some industries the particular wage-systems in vogue provided opportunities for workplace bargaining of wage-agreements, which could be exploited by workers who were in a strong bargaining position.<sup>1</sup> Another Swedish study, on the other hand, recorded a strong opinion among firms and trade union branches that the wage-drift was particularly associated with piece-rate systems.<sup>2</sup> In England again, the effect of rising productivity on piece-workers' earnings has also been suggested as an explanation.<sup>3</sup> It is curious, however, that although the proportion of pieceworkers in Britain is higher among women industrial operatives than among men, women's earnings have apparently risen little faster than their agreed wage-rates. Between 1951 and 1958, there was a 10 per cent. rise in men's hourly earnings which was not accounted for by increases in overtime or standard wage-rates, against only 1.5 per cent. for women. So here, the wage-drift seems concentrated almost entirely in male wage-packets.<sup>4</sup>

Comparison of different countries' experience does not help much towards selecting an explanation. The Swedish wage-drift, for instance, does seem remarkably high—having apparently amounted, between 1946 and 1955, to about a 50 per cent. addition to the earnings of men in manufacturing, over and above contractual wage-advances.<sup>5</sup> This has been

<sup>1</sup>"Wages: Industry Rates, Workplace Rates and the Wage-Drift" (*Manchester School of Social and Economic Studies*, May, 1956).

<sup>2</sup>"Wage Drift in Sweden." Report of enquiry by a Joint Committee of the L.O. and S.A.F. (summarised in *Trade Union Research and Study Departments*, E.P.A., 1959).

<sup>3</sup>H. F. Lydall, "Inflation and the Earnings Gap" (*Bulletin*, Oxford Institute of Statistics, Vol. 20, No. 3, 1958). The term "earnings gap" has recently been used in Britain to describe the difference between the indices of rates and earnings, but the Swedish term "wage-drift" seems more apt. It is just the *drifting apart* of nominal wage-rates and actual wages which is the problem.

<sup>4</sup>See also Ely Devons and R. C. Ogley, "An Index of Wage-Rates by Industries" (*Manchester School of Social and Economic Studies*, May, 1958).

<sup>5</sup>"Wage Drift in Sweden" (*loc. cit.*). However, this figure is not comparable with that for Britain given above, since it includes only adult males,



taken as evidence that it is a symptom of "full" or "overfull" employment : and the wage-drift seems also to have been quite pronounced in France and the Netherlands. But Denmark, which has since the war suffered from an unusually high unemployment percentage (averaging 9 per cent.) has apparently also experienced a pronounced wage-drift.<sup>1</sup> Wage-movements in Italy, which has had persistingly high unemployment, show no marked element of wage-drift : but neither do recent wage-trends in the German Federal Republic, despite that country's development of a relative labour shortage.<sup>2</sup> Nor do differences in wage-fixing methods seem to explain the differences between these countries, since in all, wage-negotiations are relatively centralised and piecework quite common.

### *Overtime : and Some Other Factors*

Some part of the apparent wage-drift is, of course, due to the different basis of the statistics commonly used to measure changes in wage-rates and earnings. If the wage-rate index is compared with an index of average *weekly* earnings, for instance, the latter will obviously reflect fluctuations in the average hours actually worked.<sup>3</sup> But these fluctuations will also affect average *hourly* earnings, by changing the proportion of overtime payments, etc. in wages actually received. On the other hand, *average* earnings are also affected by changes in the proportion of men to women, or of adults to juveniles, among industrial employees—as well as by the natural movement of workers into better-paid jobs in other industries and districts. Like most other countries' figures for average earnings, British official wage-statistics do not separate changes due to such factors from those attributable to other things, like extra

<sup>1</sup>According to the *Economic Survey of Europe in 1955* (E.C.E. Geneva, 1956), one-third of the average increase in men's hourly earnings in Danish industry from 1947 to 1955 was not attributable to agreed "cost-of-living" payments or general wage-advances.

<sup>2</sup>See "Evolution des salaires et politique salariale dans les industries de la communauté," *European Coal and Steel Community*, 1957 (Vol. I, Germany, Vol. II, Italy).

<sup>3</sup>Thus, the fluctuations to which the British Cohen Council's First Report attached such significance (see p. 96, n. 1, above) seem in fact to have been largely due to its having taken weekly earnings as one index.

piecework earnings or payments above "standard" wage-rates.<sup>1</sup> For the period covered by the preceding analysis of changes in manufacturing employment, productivity and costs (1951-58) one can, however, estimate some of them.

This is done in Table IV. Here, column 2 shows the extent to which, at each half-yearly interval for which these figures are available, the average manufacturing earnings per hour were increased by *extra* payments for overtime work.<sup>2</sup> It will be seen that such payments have shown a general tendency to rise over the period; but some of the increase (up to about half) is due to minor reductions in agreed standard work-weeks. Otherwise, as one would expect, overtime payment rises in a boom—reaching a peak in 1955—and falls off in a recession. But the impact on *average* earnings is somewhat offset by the changing proportion of women employed (the effect of which is calculated in column 3). In a boom, increased engagement of women reduces average earnings: in a slump, the tendency to dismiss female labour for preference puts up average earnings.

Finally, the effect of changes in the distribution of labour between higher-paid and lower-paid industries is estimated in column 4. The only real changes here are that *average* earnings were raised by the decline of the cotton industry in 1951-52, and again in 1957-58. But that the effect is so small is itself surprising, because previous studies have shown a slight but persistent rise in average earnings as labour moves to better-paid industries.<sup>3</sup> These studies, however, have included non-manufacturing trades, so apparently the main contribution this

<sup>1</sup>United States' official labour statistics actually include a regular estimate of average earnings in manufacture *without overtime*, but since there is no U.S. index of wage-rates one cannot assess the extent to which "wage-drift" may be significant in that economy.

<sup>2</sup>Estimated from Table I of "Employment Fluctuations, Labour Supply and Bargaining Power" (*loc. cit.*) assuming that extra payment for overtime averaged half the average rate for standard hours. This is probably a slight underestimate.

<sup>3</sup>For instance, F. A. Penrice, "Earnings and Wage-Rates since 1938" and "... 1948-55" (*Bulletin*, London and Cambridge Economic Service, Sept., 1952; and Dec., 1955). Both these calculations, and some by the present writer (*Manchester School*, May, 1956), suggest an annual increase in average industrial earnings of about  $\frac{1}{4}\%$  from this redistribution of labour between industries to be normal.

**TABLE IV**  
**AVERAGE "ACTUAL HOURLY WAGE" IN BRITISH MANUFACTURING,**  
**1951-58**

One week of :	1. Reported Average Hourly Earnings (d)	2. "Inflation" of hourly earnings by Overtime (%)	3. Effect of Sex/Age Changes on Earnings * (%)	4. Effect of Industrial Distribution Changes on Earnings * (%)	5. "Actual hourly wage" (Earnings adjusted for 2, 3 and 4) (d)
1951 Apr.	35.2	(1.85)	Nil	Nil	(34.60)
Oct.	36.8	1.85	—	—	36.15
1952 Apr.	38.9	1.80	0.1	0.2	38.15
Oct.	39.6	1.90	0.2	0.35	38.65
1953 Apr.	41.0	2.00	0.1	0.35	40.00
Oct.	41.7	2.20	Nil	0.35	40.65
1954 Apr.	43.1	2.30	-0.1	0.35	42.00
Oct.	44.3	2.40	-0.2	0.35	43.20
1955 Apr.	46.7	2.20	-0.3	0.35	45.70
Oct.	48.0	2.50	-0.5	0.35	46.85
1956 Apr.	50.9	2.20	-0.3	0.35	49.80
Oct.	51.8	2.25	-0.1	0.35	50.55
1957 Apr.	52.9	2.20	Nil	0.35	51.55
Oct.	55.3	2.30	Nil	0.35	53.85
1958 Apr.	55.9	1.85	0.2	0.40	54.55
Oct.	57.0	2.00	0.3	0.50	55.50

\* As compared with Oct. 1951 (so that col. 5 represents what the reported average earnings would have been had the proportion of women and juveniles, and the distribution of labour between industries, been the same as in Oct. 1951, *without* overtime).

As in some other calculations in this paper, Sep./Oct. 1951 has been taken as the base date, because the first official short-time and overtime return was for June 1951 : this was separated from the nearest return of average earnings by two months, so that calculations combining the two series are less reliable than at other dates.

movement of labour makes to average earnings in general arises from a transfer *into* manufacturing at large.

In the upshot, these three factors apparently make little difference to the general trend of manufacturing earnings. On one or two important occasions—in 1952, 1955 and 1958—their effect on the rise of average hourly earnings amounts to  $\frac{1}{2}$  per cent. in a half-year, which might make the difference between a positive and a negative wage-drift. But over the whole eight years, they contribute only some 1 per cent. to the increase in wages. Since average manufacturing earnings per hour have actually risen about 7 per cent. more than agreed wage-rates over this period, the greater part of the British wage-drift remains unaccounted for.

Several things not yet considered may produce different trends of agreed wage-rates and normal wages. The proportion of operatives on shiftwork or piecework (which are usually higher-paid) may change, and workers move to better-paid districts. The effect of these things on average wages is thought to be very small. However, the usual indices of wage-rates also neglect the impact of much union bargaining supplementary to the adjustment of basic wage-rates—extra rates for abnormal hours or special conditions, earnings-guarantees, allowances of various kinds, and so on—which may significantly raise average earnings. Particularly important in manufacturing, perhaps, is the generally-rising proportion of skilled (and so better-paid) labour.

Our present statistical information about wages permits no direct evaluation of these factors against the other, and competing, explanations of the "wage-drift"—earnings from rising output, payments to attract scarce labour, or "plus-rates" extracted by strong workplace union groups. But from the various estimates already made, the changing wage-drift in British manufacturing can be compared, pretty closely and in some detail, with changes in operatives' employment and productivity over the whole period mid-1951 to mid-1958.<sup>1</sup> This comparison is possible for fourteen consecutive half-years, which are set out in Table V.

<sup>1</sup>That is, from the date of the first official survey of short-time and overtime working to the date of the Index of Manufacturing Production's revision (see p. 92, n. 1).



**TABLE V**  
**CHANGES IN EMPLOYMENT, PRODUCTIVITY AND WAGES**  
**OF BRITISH MANUFACTURING OPERATIVES**

As at :	Per cent. change over preceding half year in :				5. "Wage- drift" since previous date
	1. Employment (operative hours)	2. Output per operative hour	3. "Actual wage" per hour	4. Standard wage- rates	
1951 Sept/Oct	-0.5	1.4	(4.5)	3.5	(1.0)
1952 Apr/May	-2.8	-4.7	5.6	5.7	-0.1
	Oct/Nov	1.9	1.3	1.6	-0.3
1953 Apr/May	1.9	2.4	3.6	3.9	-0.3
	Oct/Nov	2.2	1.7	0.7	1.0
1954 Apr/May	1.5	2.5	3.4	3.8	-0.4
	Oct/Nov	1.5	2.8	1.4	1.4
1955 Apr/May	0.7	4.6	5.9	4.8	1.1
	Oct/Nov	0.5	2.1	1.3	0.8
1956 Apr/May	-0.7	-2.7	6.4	6.7	-0.3
	Oct/Nov	2.2	1.5	1.0	0.5
1957 Apr/May	-0.4	3.3	2.0	1.5	0.5
	Oct/Nov	-0.2	4.6	4.0	0.6
1958 Apr/May	-2.8	-0.7	1.3	0.7	0.6

Sources : Col. 1—Table I of "Employment Fluctuations, Labour Supply and Bargaining Power" (*loc. cit.*).

Col. 2—As Table I of this study.

Col. 3—From Table IV of this study.

Col. 4—Ministry of Labour, Index of Rates of Wages in Manufacturing Industries.

Col. 5—Represents col. 3 minus col. 4.

### *Wage-Drift and the Wage-Round*

Not too much significance can be attached to the changes portrayed for any particular half-year : there is still some difference in timing between the economic and wage series depicted, and between the two main wage-series themselves. This is slight, but quite a lot can happen in a week or so—especially (because of the British system of "industry-wide" bargaining) to wage-rates.<sup>1</sup> Nevertheless, it is at once obvious

<sup>1</sup>For instance, had the engineering wage-increase of early 1957 been agreed only a week or two before it in fact was, the first half-year of 1957 would have shown a big wage-rate advance and the second half-year a small one, after the normal pattern.

that the wage-drift fluctuates quite widely. In five of the half-years covered it was actually negative.

These fluctuations show some connection with changes in both employment and productivity, though in neither case is it sufficiently strong to permit the forecast that a positive trend of one or the other—or, for that matter, of both together—would induce a positive wage-drift, or a negative trend a negative wage-drift :

	In whole period 1951/58	Employment :		Productivity :	
		rising	falling	rising	falling
Half-years analysed ...	14	7	7	10	4
Average Wage-drift, %	0.4	0.6	0.3	0.5	0.2

At first sight, the influence of employment and productivity on the wage-drift seem about equal, each accounting for some 0.3 per cent. in its variation. But this is partly because falling employment was sometimes associated with falling productivity: considering half-years of increasing productivity alone, whether *employment* was rising or falling made a difference of less than 0.2 per cent. to the average wage-drift. This certainly does not suggest that extra payments offered or conceded to scarce labour have been a very significant factor in the wage-drift, at least so far as manufacturing industry is concerned. And as we shall see later, even this degree of linkage between wage-drift and employment fluctuations may have another explanation.

On the other hand, this *does* perhaps indicate some link between the wage-drift and piece-work earnings. But by far the most strongly-marked quality of the wage-drift shown by Table V is its curious connection with increases in standard wage-rates. In general, indeed, the outstanding feature of the broad wage-movements shown here is the independent pattern imposed on them by collective bargaining practice. An annual "wage-cycle" has concentrated a general round of standard-wage advances into a few months of each year. This produces (column 4) a half-yearly alternation of large and small increases in average wage-rates throughout the

period up to 1957—when the wage-cycle was delayed by a national engineering dispute that ended in the biggest British strike for nearly thirty years.

Now, in the half-years when standard wage-advances were relatively small, the “wage-drift” was relatively big. As follows :

	In whole period, 1951/58	Standard wage-advances Big <sup>1</sup>	Standard wage-advances Small <sup>1</sup>
Half-years analysed ...	14	6	8
Average wage-drift, % ...	0.4	0.1	0.7

In fact, in four of the six half-years in which general wage-rounds concentrated, the wage-drift was actually negative. The wage-drift thus seems *directly* linked with productivity changes, but *inversely* related to standard wage-advances. More evidence of this dual connection will appear later : but meanwhile, how is it to be explained ?

#### *Piecework : and the “Short-Term Wage-Drift”*

In British manufacturing industries, some 40 per cent. of operatives are pieceworkers—in the sense that their wage includes an element directly tied to physical output. And their actual wage-rates are generally so fixed that a standard-wage advance does not automatically increase their earnings in proportion. In steel, for instance, *general* wage-increases have usually been made by automatic additions to a “cost of living” bonus which is the same for all workers. But this bonus forms only a small part of the higher-paid workers’ wage, most of which comes from piecework on prices which are centrally-fixed and rarely adjusted. In engineering, the wage-system has a similar effect, though actual piece-rates are fixed at the

<sup>1</sup>“Small” means 3.5% or less, thus including the first half-year shown, for 1951. Though this increase was substantially bigger than in the other seven half-years of “small” wage-advances, it actually represents only the tail end of the exceptionally big 1950/51 wage-round. In the *preceding* half-year, wage-rates rose 7.5% on average ! But to treat the mid-1951 increase as “big” would make little difference.

workplace. General wage-adjustments have usually been made by adding to current pieceworkers' earnings the same cash sum as that conceded to timeworkers. In several other industries, national agreements merely prescribe that pieceworkers should earn at least a fixed sum or percentage above the standard time-rates. In fact, piecework earnings are generally above this figure, so that a national standard-wage increase does not necessarily involve a revision of workplace piece-rates. In manufacturing, in fact, it has been comparatively rare for agreements that increase standard wage-rates to imply or specify proportionate increases in piece-rates. Similar wage-systems are to be found in other countries.<sup>1</sup>

Thus, a standard wage-increase will generally raise the earnings of timeworkers proportionately, but not those of pieceworkers. But on the other hand, pieceworkers' hourly earnings *will* tend to rise automatically as productivity advances, whereas the earnings of timeworkers will not. The effect of these disparities on general wage-movements can best be shown by simple arithmetic illustration—as in the accompanying *Example*.

EXAMPLE : *Relation between Pieceworkers' Earnings, Timeworkers' Earnings, Standard Wage-Advances and Wage-Drift.*

Suppose (a) half the operatives are pieceworkers ; (b) an increase in standard wage-rates raises timeworkers' earnings in proportion, but only raises pieceworkers' earnings half as much ; (c) that pieceworkers' earnings rise by half of any increase in productivity ; (d) that productivity is rising by 4 per cent. a year.

Then one can envisage the following :

<sup>1</sup>For instance, the Norwegian engineering industry has a "minimum-wage" system : national collective contracts fix basic time-wages, but there is a high proportion of pieceworkers, whose rates are fixed in the workshop.



	Average Timeworkers' Increase %	Average Pieceworkers' Increase %
First half-year :		
Standard wage-advance of 1 per cent. ...	1.0	0.5
Gain from productivity growth ...	Nil	1.0
Total ... ..	1.0	1.5
Average "actual wage" increase ... ..	...	1.25%
Of which, wage-drift ... ..	...	0.25%
Second half-year :		
Standard wage-advance of 3 per cent. ...	3.0	1.5
Gain from productivity growth ...	Nil	1.0
Total ... ..	3.0	2.5
Average "actual wage" increase ... ..	...	2.75%
Of which, wage-drift ... ..	...	-0.25%

The figures in the *Example* have been taken solely for their convenience. But they are probably not far off the relationships actually ruling in British manufacturing.<sup>1</sup> It will be seen that the wage-drift is positive when the increase in standard wage-rates is small, and negative when the standard wage-advance is large—which is just the position that Table V depicts. But it can also be easily reckoned that were productivity to increase more or less than 4 per cent. a year, the wage-drift would also be changed. An acceleration in productivity growth to 6 per cent., for instance, would wipe out the negative wage-drift for the *Example's* second half-year: if productivity stopped rising, there would actually be a negative wage-drift in both half-years. Again, this is close to the situation traced in reality by Table V.

<sup>1</sup>For instance, in the "Example" the difference between the wage-drift for the two half-years, of a big and small increase in standard rates, is 0.5%—very close to the actual average variation previously traced.

*Innovation : the "Long-Term Wage-Drift"*

This relationship between productivity changes, the trend of pieceworkers' earnings, and standard wage-advances would therefore explain pretty well the *short-term* fluctuations in the wage-drift—from one year or half-year to another. But it does *not* explain one other feature of the wage-drift : its long-term increase. In the *Example*, for instance, we finish with no wage-drift, negative or positive, for the whole year. This would fit the history of women's wage-movements well enough ; but for all workers together, we have already noted that there is an unaccounted rise of earnings for the whole period 1951-58 of 6 per cent. There seems, in fact, to be an upward pressure on average earnings apart from the factors so far analysed, and which is also very persistent. Even for the half-years 1951/52 and 1955/56, for instance (Table V), when a fall in productivity—and employment—coincided with big standard wage-advances, the negative wage-drift was relatively small. In other words, what we have so far explained is the fluctuations about a trend, rather than the trend itself.

This *long-term* wage-drift cannot be mainly attributed to the impact on actual wages of what might be called "secondary bargaining" by unions (for improvements in conditions supplementary to the basic rate), nor to the effects of such things as geographical movement of workers or industry, because then it is not clear why men alone should benefit.

A previous study by the present writer showed that from 1938 to 1954 there was a similar persistent tendency for industrial earnings in general to rise at a pace steadily exceeding standard wage-rates by (when calculated in the same terms as the present estimates) about 1 per cent. yearly.<sup>1</sup> But there, he attributed this tendency largely to a "ratchet effect" on earnings of the workplace bargaining already referred to—which is additional to the industry-wide negotiations of trade union leaderships. There is certainly something of this in the situation, but so far as manufacturing industry is concerned an alternative interpretation would now seem equally consistent with the facts.

<sup>1</sup>"Wages : Industry Rates, Workplace Rates and the Wage-Drift" (*loc. cit.*).

The only factor that remains unconsidered is the upgrading of workers consequent on technological progress. This is expressed in several ways. Employers demand superior technical training from an increasing proportion of new entrants to industry, so that the average skill-level rises; existing operatives are paid higher rates to work with new equipments; expensive new plant is more often worked on shifts, for which there is higher pay. In any event, the effect is on the one hand clearly likely to be a relatively steady one. Some innovations will be postponed when labour is in good supply, just as labour-saving devices will be encouraged when it is scarce. And this, *via* consequent changes in the pace of upgrading, might well suffice to explain such direct connection between employment fluctuations and the rate of wage-drift as has been traced from Table V. On the whole, however, the pace of upgrading will be determined by investment programmes that mature over a period of years, and will thus not be greatly affected by short-period fluctuations in demand and output. But on the other hand it is not a tendency from which women would benefit much, since they are generally confined to relatively unskilled jobs, and their employment on shifts is restricted.

In manufacturing industry, then, the wage-drift seems largely to involve two sets of factors. There is a short-term wage-drift, due to pieceworkers' earnings rising with productivity, but which is periodically offset by standard wage-advances that bring timeworkers' earnings into line. And there is a long-term wage-drift associated with the upgrading of operatives entailed by technological progress. These two things would appear to explain the whole pattern of wage-drift traced by Table V, and together with the factors previously analysed (fluctuations in overtime working, and changes in the distribution of employment between sectors or the sexes) virtually the whole variation of earnings from wage-rates in British manufacturing industry since 1951. This interpretation seems consistent with the broader 1938-54 analysis which has been noted; and some confirmatory evidence will be provided later.

*Wage-Drift and Wage-Structure*

Both forms of wage-drift are associated with productivity growth, though in different ways. To the operatives, they represent automatic "productivity gains." However, three things are important about this analysis. One, it does not imply that piecework bonuses and extra payments to work new machines are (apart from overtime, etc.) the only source of differences between standard wage-rates and actual wages. In Britain, for instance, it seems common for big firms to pay higher wages than small ones<sup>1</sup>—perhaps (among other reasons) to command a better choice of labour. What is implied is that extra payments of this sort bear a fairly stable relation to standard wage-rates, and are not generally changed independently of the latter. So that it is quite possible to have wide differences between basic wage-rates and actual wages but, because both follow the same trend, no wage-drift—as indeed seems to have been the case in Western Germany.<sup>2</sup>

Neither, secondly, does this analysis imply that *new* "plus-rates" (payments above standard wage-rates) will not arise from other sources than piecework earnings or upgrading. In a Swedish enquiry, for instance, many employers and union branches reported "wage-structure reasons" as an important source of wage-drift.<sup>3</sup> In other words, it was suggested that extra payments were frequently made by individual firms to keep the wages of one group of their employees in an equitable relationship with those of some other group whose earnings had increased. (For example, if semi-skilled operatives are given "plus-rates" to work new machinery, it may be necessary also to add something to craftsmen's rates in the same establishments to ensure that they still earn more). Or again, the adjustment to timeworkers' earnings which is effected by standard wage-advances is necessarily rough-and-ready, and because these advances tend to be the same throughout an industry

<sup>1</sup>See, particularly, "Variations between Establishments in Average Earnings," *Ministry of Labour Gazette*, July, 1959.

<sup>2</sup>A recent study by the German Metal Workers' Union (Summarised in *Trade Union Research and Study Departments, op. cit.*) showed average "effective hourly wages" in individual plants to be up to 58% above standard wage-rates fixed by regional agreements.

<sup>3</sup>"Wage Drift in Sweden," *loc. cit.*



(or even, an economy) may still leave disparities between piecework and timework earnings in individual plants that have to be corrected by additional payments in the workshop.<sup>1</sup> But in either case, these extra payments follow the direct "productivity gains" of other groups of workers. So that, although they may in fact constitute a significant proportion of the total wage-drift, they do not add an independent element to it.

But thirdly, this analysis deals only with manufacturing industry. And this is the sector where technical advance is most rapid. So workers in other industries do not generally receive the same direct "productivity gains" as manufacturing operatives. Yet standard wage advances tend to be the same in both manufacturing and non-manufacturing industries (if only because many occupations, like maintenance mechanics, are common to both groups). So that individual employers, say in transport or distribution, may often be obliged to concede extra payments to keep the wages they offer in an equitable or competitive relation with those received by factory-workers—even though they have experienced no comparable productivity increase. And in fact, the wage-drift outside manufacturing does not seem, on the average, very different. Again, therefore, the wage-drift follows the productivity gains of manufacturing operatives.

### *Effects of Relative Bargaining Strengths*

We have thus explained the wage-drift almost wholly in terms of the effects and circumstances of productivity growth. And certainly there is little evidence that other factors which have sometimes been thought important have had much effect in the wage-movements which have been analysed here—except in so far as a fall in employment is usually accompanied by a temporary fall in productivity. But changes in the operatives' bargaining strength—whether caused by fluctuations

<sup>1</sup>In the British metal-working trades, for instance, the practice of paying "lieu rates" to operatives whose work is not suitable for piecework is widespread—indeed, recognised by some national agreements. On the other hand, in the textile industry, where workers on successive processes may be paid on "industry-wide" time or piece rates, it is now common for firms to guarantee the weekly earnings of pieceworkers against the intermittently scaled-down outputs which are normal to the trade, thus effectively raising their average wage.

in the demand for labour *or* by developments in union organisation—may well have an effect in the longer run.

Thus, the short-term wage-drift really depends on the character of the piece-rate systems prevailing. Increasing productivity is widely identified with changes in methods, equipment or products. And when such changes are made, industrial agreements (like those of the British and Norwegian engineering industries already described) commonly provide for piece-rate revisions that, in theory, produce no higher earnings than before. But many technical or methodological changes are comparatively minor: if operatives are in a strong bargaining position, the employer may not then think it worth risking trouble by revising piece-rates. And in fact, manufacturing productivity—and therefore piecework pay—tends to rise even when no technical changes are made, because efficiency rises continually from mere repetition of the same job.<sup>1</sup> So when a change involving new piece-rates finally occurs, strongly-organised operatives may be able to secure rates that yield, not the earnings level provided by the standard agreement, but the higher level finally attained under the previous conditions.

Similarly, the long-term wage-drift will depend on the differential payments fixed for newer types of equipment, skilled work, shift systems and so on. And since these are negotiated as occasion arises, they are also likely to be influenced by the bargaining circumstances then prevailing. But at any one time, most of the changes made by individual firms will not represent unfamiliar innovations, but will be subject to agreements already made, perhaps under different bargaining conditions—just as at any one time, most piecework will actually be performed under rates fixed some time before.<sup>2</sup>

<sup>1</sup>See the studies described by A. J. Bruggink's "Problems raised by Incentive Systems in the Dutch Metal Industry" (*E.P.A.*, 1959). For this reason piecework also tends (under contemporary conditions) to involve a "ratchet effect" on earnings.

<sup>2</sup>Thus, in the British steel and cotton industries piece-rates fixed fifty or sixty years ago by district or industry-wide agreements are still operative for certain types of work. And it has, indeed, been a notorious cause of anomaly in relative earnings between textile operatives that the various piece-prices now contained in the traditional wage-lists were determined individually, at different times and thus under very diverse bargaining circumstances.

So that the *immediate* bargaining strengths of firms and their operatives only influence the latter's "productivity gains" at the margin, where new rates are fixed. And some time would elapse before a major change in either the solidity of union organisation or the demand for labour had much effect on the wage-drift.

One might put it that the rate of wage-drift characteristic of a particular period is determined less by the *present* bargaining relationship between employers and workers than by their *historical* bargaining strengths. This would explain why the wage-drift should apparently have been negligible in Britain between the Wars (when there was mass unemployment and union membership was half the present-day figure) but has since become pronounced. Improved union organisation and a generation's high employment have largely transformed the structure of piece-rates and of differential payments for new work.

But this would also explain some differences in wage-drift between countries. An economy (like Denmark) with a high recent unemployment level might still have a high rate of wage-drift because the traditional strength of trade unionism still dominates the wage-rate structure, even if it does not fully offset the effect of unemployment on bargaining about new rates. A country with relatively full employment, on the other hand (like Western Germany now) could have a negligible wage-drift because of the comparative novelty of trade unionism, and its inexperience in the workplace—where new piece-rates and the like are mostly fixed.

Similarly, it would explain why the wage-drift should be high in the British steel industry, where the strongly-unionised operatives' long-established piece-rate systems yield them very considerable "productivity gains," but low among the always badly-organised farm-workers, despite British agriculture's rapid mechanisation and considerable recent growth of productivity. So this analysis would explain variations in the wage-drift not merely in one country over time, but between different economies, or between different sectors of a particular economy. And it has already explained the difference between men's and women's experience here.

*Wage-movements in general*

From 1951 to 1958, the average "actual hourly wage" of British manufacturing operatives rose by nearly 60 per cent.<sup>1</sup> Of this only 6 per cent. was accounted for by the wage-drift. The rest was due to advances in standard wage-rates.

But if the foregoing explanation of the wage-drift is valid (and it seems reasonably supported) it has an important implication for wage determination at large. This supports Lydall's suggestion that a combination of rising productivity and partial piecework payment exercises certain compulsive effects on the general movement of wages.<sup>2</sup>

*Given the wage-systems that currently predominate in manufacturing industry (and which determine both the short-term wage-drift and the pieceworkers' share of standard wage-advances) there is, at any rate of productivity growth, only one rate of standard wage-advance that will keep pieceworkers and timeworkers' earnings in line.* This can be seen from the *Example* previously set out. The conditions there supposed include a 4 per cent. annual increase in productivity. Had the standard wage-advances for the year totalled more or less than 4 per cent. also, it can easily be reckoned that pieceworkers' earnings would have risen less or more than timeworkers'. If, on the other hand, *productivity* had increased more than 4 per cent., it would also have required a greater increase in standard wage-rates to maintain an equitable (or competitive) relationship between the two groups of operatives' earnings.

In effect, for any rate of productivity growth and pre-dominant wage system, there is also what might be called a "normative" rate of wage-advance. This proposition can, in fact, be expressed by a formula :

<sup>1</sup>"Actual hourly wage" = average hourly earnings minus overtime, and after allowance for changes in sex/age and industry distributions (see Table IV).

<sup>2</sup>"Productivity and the Earnings Gap" (*loc. cit.*). It will be seen, however, that there are very considerable differences between the present analysis and Lydall's "model." For instance, the latter implies a continuous widening of the differential between pieceworkers and timeworkers, for which there seems no British evidence, and would not explain the apparent incidence of negative wage-drift.



$$\left. \begin{array}{l} \text{Normative} \\ \text{Standard} \\ \text{Wage-} \\ \text{Increase} \end{array} \right\} = \text{Productivity Growth} \times \frac{\text{Pieceworkers' "productivity gain"}}{1 - \text{Pieceworkers' gain from standard wage-advances}}$$

The final expression here represents, of course the average effects of the current piece-rate systems.<sup>1</sup> It also represents the short-term wage-drift's determinants.

It might be doubted that the sort of divergences between pieceworkers' and timeworkers' earnings envisaged in, say, the *Example*, would provoke tensions sufficiently powerful to produce such a compulsive tendency as that here envisaged. In any one year, of course, the failure of standard wage-advances in a particular sector to coincide with the normative level might not be serious. But continued over two or three years, one can easily see (from the *Example* again) that the divergence would become significant. It would also be obvious—since pieceworkers and timeworkers are commonly employed alongside each other, sometimes one group acting as the other's assistants.<sup>2</sup> And one has then only to imagine such divergences developing at different times in different sectors of industry to see how a tendency to the normative rate of standard wage-advance would be brought about. In effect, it represents the rate at which unrest in the workplace is likely to be minimised.

But again, the point can best be illustrated from actuality. During the British post-war Labour Government's "wage-restraint"—roughly from Oct. 1948 to Oct. 1950—standard industrial wage-rates rose by only 3 per cent. But average earnings without overtime rose by twice as much. This would imply that pieceworkers' earnings rose nearly three times as fast as timeworkers', putting them over 6 per cent. ahead in two years. Such an inequity between pieceworkers and timeworkers would certainly help to explain the collapse of the official "wage-restraint." If the quite abnormally large standard

<sup>1</sup>For instance, in the *Example* previously given, the calculation would be

Normative		0.5	
Standard	= 4% ×	—	
Wage increase		1 — 0.5	= 4%.
(% p.a.)			

<sup>2</sup>There are even cases in textiles, steel and shipbuilding where the timeworkers' rates are nominally paid from the pieceworkers' earnings.

wage-advance over the winter of 1950 (when standard rates rose much faster than average hourly earnings) was not an inevitable consequence of the Korean boom, it would have been necessary to correct the discrepancy.<sup>1</sup>

But we can now in any case test this analysis by looking at the movement of manufacturing productivity, employment and wages as a whole, for the period for which Table V provides statistics as detailed and comparable as can be devised. If the analysis is valid, we should expect wages to follow the trend of productivity, rather than employment.

At first sight, however, no apparent connection emerges between general wage-movements and *either* employment *or* productivity changes. The biggest wage-increase for any half-year shown by Table V, for instance (1955/56), as well as the biggest annual increase (1951/52), each occurred when employment was falling. Similarly, in three of the four half-years of Table V when productivity fell, the rate of wage-increase was actually above average. But this is mainly because the wage-movements shown are dominated by the autonomous rhythm of the annual wage-round. This alteration can be "smoothed-out" by averaging the half-yearly wage-increases traced by Table V over successive pairs of half-years.<sup>2</sup>

This is done by the accompanying Graph, which shows that there *is* a connection between wages and employment. After a fall in employment (as in 1951/52 or 1956/57) the rate of wage increase slows down significantly. However, there is an even closer connection between wage-movements and productivity. Generally, it is obvious that wages increase faster or slower, according to whether productivity is rising or falling. But particularly, "actual hourly wages" seem much more sensitive to productivity. At the beginning of the period, in 1951/52, when productivity continued briefly to rise despite

<sup>1</sup>It is perhaps significant that Ministry of Labour returns show a marked spread of "payment by results" schemes during the "wage-restraint." After its collapse, however, the proportion of pieceworkers fell back again.

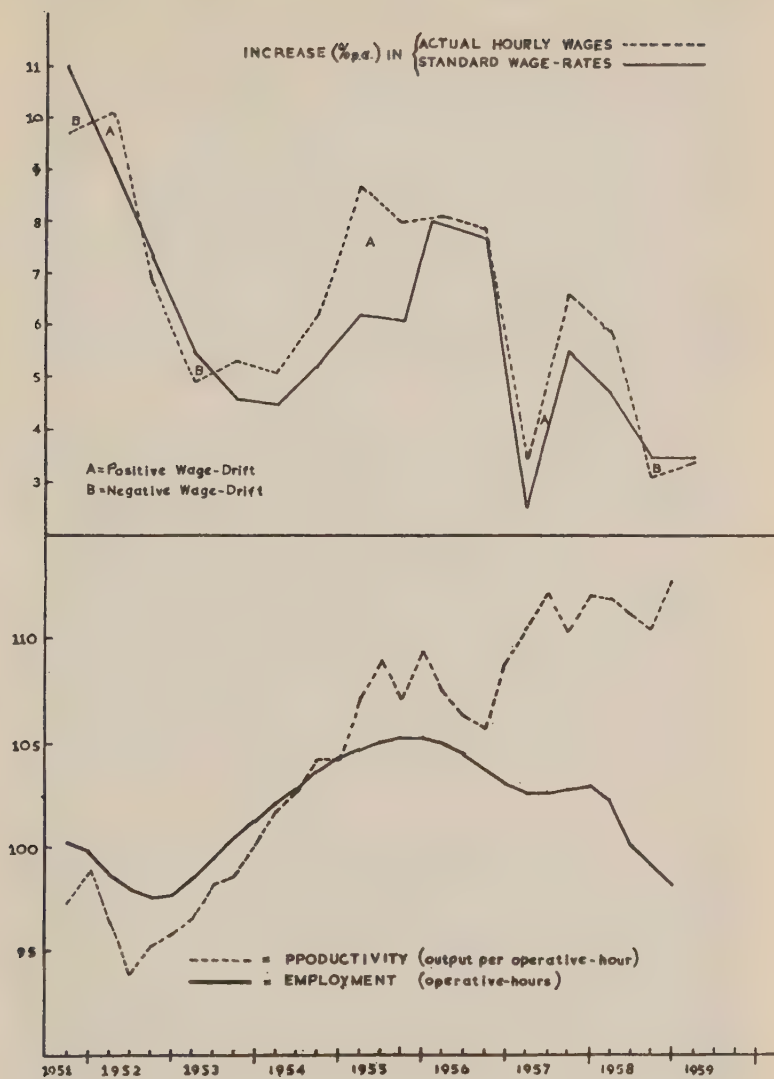
<sup>2</sup>To permit this, additional estimates have had to be made for the two half-years (of 1950/51 and late 1958) immediately before and after the period covered by Table V, and for which the available statistics are not quite comparable. (It should also be noted that the upper part of the Graph is in half-yearly readings, the lower in quarterly).

the turn-down in employment, they were still rising fast despite a fall-off in standard wage-advances. On the other hand, when productivity turned down in late 1955, the increase of actual wages slowed although employment was still rising. When productivity rose again, after 1956/57, the growth of actual wages recovered despite the fact that employment stayed down. And when in late 1958 productivity recovered from yet another recession, the increase in actual wages apparently speeded up again, although employment was then still falling sharply.<sup>1</sup> In other words, changes in the level of employment appear to have affected wages mainly in so far as they also affected productivity.

However, the Graph also permits us to trace the detailed mechanics of wage-movements over this period. Take, in the first place, the wage-drift. It will be seen that the wage-drift tends to be smaller (other things being equal) when the rate of standard wage-advance is high. With the very big standard wage-increases of 1951 it seems actually to have been *negative* (although employment was then at a peak). Similarly the wage-drift almost disappears in the presence of 1956's large increase in standard rates. On the other hand, the wage-drift also follows productivity trends in becoming negative during the 1952 fall in productivity, and *very* positive during the late 1954 acceleration in productivity growth. Both these features fit the explanation of the "short-term wage-drift" already given. But it will also be seen that the wage-drift never becomes quite so much negative as it does positive. So that the presence of a "long-term wage-drift" (offsetting short-term negative movements and amplifying positive ones) is also inferred.

If the wage-drift follows productivity, however, advances in standard wage-rates appear to follow the wage-drift. Standard wage-increases, for instance, fall off after the

<sup>1</sup>Because the wage-movements in the Graph have been smoothed-out, the fluctuation in 1958 is not fully revealed. In fact, for the half-year of mid-1958, the "wage-drift" was more sharply negative; but for the half-year 1958/59, it seems to have been quite remarkably positive—about 1%. Incidentally, an interesting feature of this graph is the waver in the productivity line just before the 1955/56 and 1957/58 recessions. Productivity first falls off about six months before employment in each case, suggesting that (if properly calculated) it may be an even more prompt warning of recession than total working hours (which were used to compute the employment series).





appearance of a negative wage-drift in 1952, soar as the wage-drift becomes increasingly positive over 1953/55, fall off again when a very small wage-drift persists over late 1956, and so on. But there does seem to be a sizeable lag (of up to a year) in the response of standard wage increases to changes in the wage-drift. This lag would explain why the pace of wage-advance may continue high when employment and productivity have turned down (as in late 1955), or may stay quite low for some while after a recovery (as in 1953/54). It corresponds to a full industrial bargaining season, and would thus represent the time required for unrest in the workplace caused by different trends in pieceworkers' and timeworkers' earnings to have an effect on industry-wide standard agreements. So that the Graph also fits the concept of a "normative rate" of general wage-advance related to the current trend of productivity.

Some further support to this concept's validity is perhaps provided by British experience over the whole period of rising wages since 1938. From the Second World War's outbreak to Oct. 1958, we have nineteen complete annual bargaining seasons (the "annual wage-round" concentrates in the winter and spring). Per season, and for all wage-earners together, the increase in standard wage-rates averaged  $5\frac{1}{2}$  per cent. In ten wage-rounds the increase was actually within 1 per cent. of this figure. In the other nine, it varied markedly. But three of these exceptional wage-rounds covered the War's first year, and the two years of immediate post-war re-adjustment. Four in succession covered a period of official "wage-restraint" followed by the Korean boom: nevertheless over these four seasons the annual increase averaged  $5\frac{1}{2}$  per cent. The remaining two comprise the boom season of 1955/56, and the recession of 1957/58: again, however, over the whole period Oct. 1955/58, the annual increase averaged  $5\frac{1}{2}$  per cent. But this is also exactly the average yearly rise in standard wage-rates for manufacturing industry alone over the whole period of our Graph. And since wages generally clearly cannot get too far out-of-line with those in the major manufacturing sectors, their "normative rate" of wage-advance conditions the movement of wages at large. It looks very much, therefore, as if  $5\frac{1}{2}$  per cent. has so far represented the yearly increase in

standard wage-rates that has become normative to the British economy in the past generation.

It is interesting that West European experience in general, so far as one can average it out, suggests a not very dissimilar situation. The average advance in manufacturing wage-rates seems to have been roughly the same in recent years, but the pace of "long-term wage-drift" appears to have been rather higher, perhaps indicating a faster rate of industrial innovation. And this may be connected with the main difference from the British record, that the apparently similar advance of standard wage-rates has been related to a faster productivity growth ; in the British case, of course, the annual  $5\frac{1}{2}$  per cent. standard wage-advance greatly exceeded actual productivity increases, even for manufacturing alone.

Even in the *Example*, where the "normative" rate of standard wage-advance happens to coincide with the assumed growth of manufacturing productivity, it is still inflationary, because this does not include the "long-term wage-drift," which we have estimated to add nearly a further 1 per cent. annually to British manufacturing earnings. In terms of manufacturing costs, this might be offset by savings from the improving utilisation of capital, as opposed to labour. However, since productivity outside the manufacturing sector naturally rises less fast than within it, the *Example's* "normative rate" of wage-advance would still be inflationary for the economy as a whole.

### *Summary : and Some Policy Conclusions*

As a whole, we can summarise this analysis as follows. Apart from certain minor factors—like a tendency for actual hours worked to rise—the increase in wages since 1951 (and probably since 1938) has largely depended on two elements. The first and by far the bigger is the advance in standard (or "contractual") wage rates. The pace of this advance has been conditioned by the need in manufacturing industry for increases in timework wages to match the "short-term wage-drift" in pieceworkers' earnings that growing productivity engenders under contemporary piecework systems. This produces a "normative" standard wage-advance which may, according to

the predominant piece-work systems, be more or less than the rise of productivity, but will in any case also fluctuate with the latter (subject to a lag imposed by industry-wide bargaining procedures). The second element is a "long-term wage-drift," consisting mainly in extra payments required by industrial innovation—either for superior skills, or to make innovation acceptable in the workplace. The general rate of wage-advance has, therefore, been determined by the impacts of productivity growth upon the contemporary wages-structure.

Changes in the level of employment have some direct effect on the rate of wage-drift, but this is relatively small, and may be connected with consequent variations in the rate of innovation. Otherwise, they enter the picture in two main ways. In the first place, a fall in demand and employment will reduce the unions' bargaining strength in industry-wide negotiations. It also generally produces a fall in productivity, so that pieceworkers' earnings fall off. And this permits the rate of standard wage-advance to decline without inducing unrest and distorted wage-differentials in the workplace. But *this* effect will be temporary, because productivity and pieceworkers' earnings will soon recover, and with them, the pressure for standard wage-increases. Secondly, however, the level of employment will affect the bargaining of new piece-rates and of wages for new types of work. It will thus also affect the wage-drift (and so in turn, the "normative" standard wage-advance). But because at any one time the wage-drift will be determined by the wage-structure as a whole, any change in the employment level must be quite enduring before the rates of wage-drift are substantially altered.

Of course, this analysis would not exclude other influences on wage-movements. Over the period here examined in detail for instance, British wages have generally moved ahead of living costs, so rising retail prices cannot be held responsible for the trend of wages. But the very high rate of wage-increase with which the Graph begins is certainly in part due to the exceptional rise in the cost-of-living caused by increased import prices during the Korean War. All that the present analysis says is that where standard wage-rates are forced up for this

reason, the result may be a distortion of workplace wage-differentials that will take some time to work itself out—probably in workplace pressure for further wage-increases. The pronounced negative wage-drift the Graph shows for 1951 implied that pieceworkers' earnings were then rising less than timeworkers.

Similarly, it is clear that the general pace of wage-advance may be affected by relations between the trade unions and the government. Since the British Labour government's fall in 1951, the trade unions have apparently been less willing to accept restraints on wages. On the other side, the British employers' associations' more determined resistance to wage-advances since 1956 has been encouraged by the government's attitude (reflected in various postponements and limitations of wage and salary increases for public servants and employees). Again, all that the present analysis says is that such things mainly affect standard wage-advances, so that here too the result is likely to be a distortion of workplace wage-differentials that may induce further wage-movements. The effect of the Labour government's wage-restraint policy of 1948/50 has already been noted.

However, both the "political factor" in wage-movements, and the influence of extraneous cost-of-living changes, are discontinuous effects. The interaction between the productivity trend and the wage-structure is continuous. Given the sort of wage-systems that strongly-placed and organised operatives are likely to secure, inflation may thus follow automatically from productivity growth.

To this dilemma, it is *not* by itself a solution to accelerate the growth of productivity, since if nothing else were done, the "normative" rate of wage-advance would then increase too. Nor is it a solution merely to impose a systematic restraint on contractual wage-advances—through a government wage-policy, a concerted resistance by employers' organisations, or the like. Such a restraint may be justified temporarily to meet some critical economic situation, but (again if nothing else were done) it would inevitably provoke industrial unrest as pieceworkers' earnings rose ahead of other wages.



A permanent solution would involve modifying the wage-structure itself. A lasting reduction in employment would ultimately effect this by making piece-rates, and rates for new types of work, less favourable to workers. But our introductory examination of the relation between employment and productivity suggests that it would involve at least a proportionate loss of industrial output. And whether even an employment restriction of the order experienced by Britain since 1955 is sufficient to have any significant impact on the future rates of wage-drift remains very doubtful.

Since the system of "payment-by-results" plays such a large part in the mechanics of wage-inflation, the post-war British campaign to extend incentive payment might be thought mistaken.<sup>1</sup> But it can easily be reckoned from the *Example* (of pp. 105-6) that the "normative" rate of wage-advance is unaffected by changes in the proportion of pieceworkers—so long at least, as this proportion remains significant. If piecework *does* have the effect of increasing productivity, that is desirable in itself. And it would in any case be as logical, (and probably as easy!) to make "payment by results" universal as to abolish it, since either course would have the effect of eliminating the critical interconnection of timework and piecework wages.

An alternative approach is implied in the "normative" rate of wage-advance itself. From the formula previously given for this, it can be inferred that wage-inflation would be avoided if productivity growth (plus, perhaps, the savings of improving capital utilisation?) were equal to, or greater than the following rate :—

$$\text{productivity growth} \times \left\{ \frac{\text{pieceworkers' productivity gain}}{1 - \frac{\text{pieceworkers' gain from standard wage-advances.}}{1}} \right\} + \text{long term wage-drift.}$$

In words, the "normative" rate of wage-advance can be scaled-down by reducing any one of its three wage-determinants. Of these, however, the long-term wage-drift embodies inducements to accept innovation. But the automatic inflation of

<sup>1</sup>In all industries covered by official enquiries, the proportion of pieceworkers has risen from 27% to 32% since 1947.

pieceworkers' earnings by productivity growth could be reduced by applying payment-systems more scientifically based than those that still predominate. And the pieceworkers' gain from standard wage-advances could be reduced by *deliberately* arranging these to discriminate more in favour of timeworkers.<sup>1</sup>

It is interesting that both methods have begun to be explored under particular national wage-policies—the first in the Netherlands, the second in Sweden, for instance. (And a Swedish enquiry also suggests the "wage-drift" to be less where piecework rates are "scientifically assessed.")<sup>2</sup> But obviously, the possibility of realising such changes would be improved if wage-structure reforms could be put, not as a method of reducing the growth of money wages, but as part of a programme to raise productivity growth (and therefore real wages) without inflation.

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<sup>1</sup>To take the *Example* again, for instance, it would be possible to include a "long-term wage-drift" of 1 per cent. yearly and still have a total wage-advance equal to productivity growth at 4 per cent., if the ratio of pieceworkers' gain by productivity were reduced from 0.5 to 0.375, or if the ratio of their gain from standard wage-advances were reduced from 0.5 to 0.33: by either method pieceworkers' and timeworkers' earnings would then be kept in line by a standard wage-advance of 3%.

<sup>2</sup>"Wage-Drift in Sweden," *loc. cit.*



## Books Received



DOWSETT, W. T. : *Elementary Mathematics in Economics*. Sir Isaac Pitman & Sons, London. 30/- net, pp. 250.

KOLHATKAR, V. Y. : *Modern Theory of Money*. Good Companions, Baroda, India. Rs. 9/-, pp. 242.

LOGANTHAN, C. : *Development Savings Bank*. Ceylonese National Council, International Chamber of Commerce, Colombo, Ceylon. pp. 147.

SCHWARTZ, G. : *Bread and Circuses*. *The Sunday Times*, London, W.C.1. 12/6d. net, pp. 220.

SMELSER, N. J. : *Social Change in the Industrial Revolution*. An Application of Theory to the Lancashire Cotton Industry, 1770-1840. Routledge & Kegan Paul Ltd., London, E.C.4. 40/- net, pp. 440.

VICKERS, D. : *Studies in the Theory of Money, 1690-1776*. Chilton Company, Book Division, Philadelphia 39, Pa. \$6.50 net, pp. 313.





# An Experiment in Comparative Costing in the Hospitals Service

Regulation 21 of the National Health Service (Hospital Accounts and Financial Provisions) Regulations 1948 (Statutory Instrument 1948 No. 1414) provides that each hospital authority shall prepare annual cost accounts in such form as the Minister of Health shall direct in respect of each hospital under its control.

From the year ended 31st March, 1951, until the year ended 31st March, 1957, a simple form of cost analysis, based on the subjective expenditure headings used in the financial accounts, was prepared, by the Minister's direction, throughout the Hospitals Service. The unit chosen for the expression of these costs was the average cost of maintaining a patient for one week.

The main objective of the costing, apart from providing historical comparisons within a hospital, was to facilitate comparisons between hospitals so as to locate, and extend, the successful medical and administrative methods in use in some hospitals, and to eradicate expensive arrangements and poor organisation which might be found elsewhere.

For several reasons the simple costs provided in the early days of the service proved unsatisfactory.

Because of the method by which the costs were prepared, from the totals of a subjective expenditure analysis, it proved impossible to separate controllable, or efficiency factors in cost differences between hospitals from the uncontrollable effects of differences in local situations. A difference in average patient/week costs between two hospitals might have arisen through different levels of efficiency in treatment or administration. On the other hand it might have resulted from differences in the range and nature of services provided, differences in the age and illness distributions of the patient populations, differences in staff (particularly nursing) recruitment, or differences in the physical circumstances (age, layout of buildings, etc.) under which the hospitals carried out their work.

Additionally, the unit chosen for the expression of the costs, the average cost per week of maintaining a patient, proved unsuitable for much of the expenditure incurred. Many hospital costs, particularly in the domestic and administrative services, do not vary in direct relation to patient population sizes. Heating costs, for instance, depend on the cubic space to be heated, which might reflect not merely numbers of patients in the hospital, but also heights, areas and arrangements of wards, the degree of insulation of buildings and other things.

Furthermore, the cost unit itself was somewhat arbitrary in calculation. The absence of departmental costing made it impossible for separate costs to be provided for out-patient departments, and the elimination of out-patient from total costs was effected by regarding five out-patient attendances as being equal in cost to one in-patient day, a device which was, to say the least of it, questionable.

These defects in the costs rendered them largely ineffective in achieving the purposes for which they were constructed. The figures reflected such a variety of undistinguishable complementary and conflicting influences that executive action on the basis of them proved in most cases to be impossible.

Following a report of a Working Party on Hospital Costing set up by the Minister, substantial changes were introduced into the scheme of hospital costing from 1st April, 1957. The main scheme, which was initially operated by the larger hospitals only, provided for a reclassification of expenditure under objective headings, so that costs of wards, departments and services within each hospital would be available. The number of hospitals operating the main scheme has increased each year since its introduction. Hospitals outside the main scheme have prepared costs on an improved version of the original arrangements, and have provided unit costs for certain departments based on a reclassification of the principal direct expenses.

The main scheme provides for the expression of the expenditure of each separately costed department in terms of costs per unit of the work performed. Thus boiler house costs are expressed in terms of cost per 1,000 lbs. of steam raised, laundry expenditure is expressed in terms of cost per 100

articles laundered, catering expenditure in terms of the cost per person fed per week, and so on, the expenditure within each objective head being analysed subjectively and expressed in terms of the same unit.

The new arrangements meet most of the criticisms of the former system in so far as medical service, domestic and administrative departments are concerned, although some of the cost units are experimental, and might be improved. Comparisons of objective costs based on the more appropriate new units, and constructed on a common system of analysis, should prove valid for hospitals of similar size and type after adjustment for local factors which justify cost variances. The main objective of the supporting departments is to provide services ancilliary to the curative activities of the wards. By and large, the standard of these services can be predetermined, and terminal costs provide a useful test of the effectiveness of the departments in maintaining the prescribed level of service. If not absolute criteria of efficiency, the costs should at least indicate where economies might be made, and should show the effects on expenditure of different kinds of organisation, methods and physical structures.

The new arrangements effect considerable improvement in the costs provided for in-patient departments (wards). Departmental analysis of out-patient costs has eliminated the arbitrary adjustment previously required in the calculation of average costs per patient/week, and the removal of indirect costs to separate accounts relieves the figures of much detail which was irrelevant to the main purpose of the wards.

Even so, the costs provided for the wards remain much less useful either as tests of comparative efficiency or as standards for the assessment of different methods than do those provided for the supporting departments. The structure of patient populations, even in hospitals of similar size and type, differs considerably. Proportions of young and old and curable and incurable patients, and the constellations of illnesses treated affect costs, though these variations have no relevance to the effectiveness of the treatment provided by the medical and nursing staff. Although an improvement on the largely meaningless figures provided before the introduction of the main



scheme, the Ministry's in-patient department costs remain largely ineffectual. Because of the complex of unrelated influences they reflect they are unreliable as tests of relative efficiency, and because their presentation is solely an expression of total costs in terms of an average unit, they provide no supporting data for the examination of variations in methods and organisation.

The present experiment seeks to establish to what extent a further refinement of the costs would render them more useful in comparative tests, and more capable of providing supporting material illustrative of organisational and clinical differences between hospitals. It was primarily designed to remove from the costs one major irrelevance in their construction: the difference between hospitals in the proportions of their patients who are capable of cure in a relatively short period of time as compared with those who are likely to remain in hospital for a long period. In order to avoid the other main irrelevance in inter-hospital in-patient comparisons, the variation in the ranges of illnesses treated, three hospitals dealing with a particular field of activity, the treatment of mental illness, were chosen for study.

Apart from their common concern with mental illness, the three hospitals selected are very dissimilar. Hospital *A* is a small registered hospital of 300 patients. It is one of four registered hospitals outside the Health Service, and most of the patients are fee paying. The standard rate is fifteen guineas a week, but the hospital is controlled by a charitable trust, and half the patients pay less than the standard rate, and some pay nothing at all. The hospital accepts a small number of National Health Service patients for whom the Regional Hospital Board makes payment on contract.

Hospital *B* is again a small hospital, about 400 beds, but unlike hospital *A* it is in the National Health Service. Private patients at ten guineas a week are accepted, and about 60% of the patients are either private or amenity patients paying two to four guineas a week. Hospital *B* is pleasantly situated, in attractive buildings, in a country town.

Hospital *C* is a large old mental hospital, housed in forbidding Victorian buildings in a provincial city. It provides

2,800 beds, many for chronic patients, unlikely ever to be discharged. Hospital C has benefited considerably from the establishment of the National Health Service. Several new buildings have been constructed, and particular attention has been paid to the provision of accommodation for newly-admitted (and possibly curable) patients, away from the "asylum" atmosphere of the old main buildings.

The inquiry was directed towards the analysis of the three ward costs most directly concerned with curative activity, medical salaries, nursing salaries, and the cost of drugs, etc. Total expenditure by the hospitals and average costs per patient week during the year ended 31st March, 1958, together with relevant statistics, are shown in Table I.

**TABLE I**  
TOTAL EXPENDITURE AND AVERAGE COSTS PER PATIENT/WEEK IN  
YEAR ENDED 31st MARCH, 1958, AND RELEVANT STATISTICS \*

	Hospital A		Hospital B		Hospital C	
	Total Expenditure	Average cost per patient week	Total Expenditure	Average cost per patient week	Total Expenditure	Average cost per patient week
	£	£ s. d.	£	£ s. d.	£	£ s. d.
<i>Costed items</i>						
Salaries:						
Medical ...	11,130	14 4	11,656	11 9	34,841	4 10
Nursing ...	63,790	4 2 3	60,618	3 1 0	297,427	2 1 8
Drugs, etc. ...	3,064	3 11	3,602	3 7	11,879	1 8
Total ...	77,984	5 0 6	75,876	3 16 4	344,147	2 8 2
<i>Statistics †</i>						
Patient Numbers :						
Short-stay ...	139		127		500	
Long-stay ...	159		254		2,300	
Total ...	298		381		2,800	

\* In the case of Hospitals B and C these figures are taken from the annual costing returns prepared for submission to the Minister of Health. Since Hospital A is not a part of the National Health Service, no costing returns are submitted. The figures given in Table I for Hospital A are obtained from a re-analysis of the hospital's annual financial accounts.

† The term short-stay is used in mental hospitals to indicate those patients who are regarded as being capable of cure in a relatively short period of time. With a very few exceptions, long-stay means incurable. The proportions of short-stay and long-stay to total patients varies very little in the short period. Whole wards are usually allocated to one category or the other, and a change in the user of a ward would normally involve a major alteration in the clinical organisation of the hospital. The figures given in Table I remained true throughout 1958 and 1959.

The principal object of the experiment was to discover to what extent it might be possible to divide these costs between work related to short-stay patients and that concerned with long-stay patients, so as to provide a separate average patient/week cost for curable patients which, when related to average lengths of stay, would give some indication of the relative effectiveness in terms of cost per case of the wards in the three hospitals.

The problem was approached by seeking to establish what proportions of doctors' and nurses' time, and drugs, etc. issued, were devoted to each of the categories of short-stay and long-stay patients during a test month early in 1959. In so far as could be established, the periods chosen were typical. The inquiry covered every doctor and nurse, and all issues of drugs in each hospital. The amounts of time spent and drugs, etc. issued in respect of each category of patients in the test month were costed up at prices ruling during the month. Expenditure on each of the heads costed during the year ended 31st March, 1958, was then divided between the two categories of patients in proportion to the total expenditure on each category under each head in the test month. Average patient/week costs were derived from these figures by applying the formula :

$$\begin{array}{l} \text{Proportion of total expenditure} \\ \text{on (e.g.) Medical Salaries in} \\ \text{respect of (e.g.) short-stay} \\ \text{patients in year ended 31st} \\ \text{March, 1958, at (e.g.)} \\ \text{Hospital A (calculated as} \\ \text{described above)} \end{array} \times \frac{7}{365} \times \frac{1}{\text{Number of short-stay patients}} \\ \text{in Hospital A}$$

The resulting separate average cost per patient/week figures for short-stay and long-stay patients are shown in Table II.

The inquiry showed that both doctors and nurses spent considerable, though as between the three hospitals, greatly varying proportions of their time, on work other than that directly concerned with patient care. Administrative work, attendance at staff and patient meetings, and supervising ancillary departments (e.g. occupational therapy) were the main categories of this employment. There being no reason to suppose that this work was for the benefit of one category

**TABLE II**  
AVERAGE COSTS PER PATIENT/WEEK FOR SHORT-STAY AND LONG-STAY PATIENTS \*

	Hospital A		Hospital B		Hospital C	
	Short stay	Long stay	Short stay	Long stay	Short stay	Long stay
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Salaries :						
Medical						
Clinical ...	17 8	4 3	16 1	4 4	10 5	1 8
Other ...	3 9	3 9	3 5	3 5	1 6	1 6
Nursing						
Clinical ...	2 6 11	2 14 10	3 8 10	1 5 5	3 3 8	1 12 8
Other ...	1 10 11	1 10 11	1 1 3	1 1 3	2 6	2 6
Drugs, etc. ...	3 11	4 0	7 7	1 7	2 2	1 6
Total ...	5 3 2	4 17 9	5 17 2	2 16 0	4 0 3	1 19 10

\* I am indebted to Dr. Kathleen Jones for much of the basic costing data used in the construction of this table and Table III.

of patients more than another the cost was allocated equally among all patients, and appears in Table II as "Other Salaries."

The long-stay patient costs reflect merely the care and attention received at the three hospitals by patients who are generally regarded as being incurable, and unlikely ever to be discharged. In all three hospitals the amount of doctors' time spent on these unfortunate people was very small. The greater amount of nursing time devoted to them at hospital *A* mainly reflects the fee-paying population in that hospital and the consequently greater amount of money available for providing such comforts and attention as are possible.

Table II demonstrates the concentration of resources, particularly in hospitals *B* and *C* on the short-stay patients deemed to be capable of early cure. In Table III these costs are related to average lengths of stay of short-stay patients, and costs per case are shown.

Tables II and III demonstrate the unsuitability of crude average patient/week figures, as at present compiled in the Hospitals Service (Table I), for making inter-hospital comparisons of ward costs. The relatively high proportions of low-cost long-stay patients in hospitals *B* and *C* as compared with



**TABLE III**  
**AVERAGE COSTS PER PATIENT/WEEK, AVERAGE LENGTHS OF STAY**  
**AND AVERAGE COSTS PER CASE FOR SHORT-STAY**  
**PATIENTS**

	Hospital A	Hospital B	Hospital C
(1) Average cost of ward treatment per patient/week	£5 3 2	£5 17 2	£4 0 3
(2) Average length of stay of short-stay patients (days)	69.3	102.0	116.8
(3) Average cost of ward treatment per case $((1) \times (2))$ $\frac{\quad}{7}$	£51 1 4	£85 7 2	£66 19 0

hospital *A* distort the figures to such a degree as to make comparisons of efficiency based on them misleading.

The alternative measurements provided in Table III, reflecting the degree of concentration of effort on curable patients in each hospital in relation to average lengths of stay provide a useful refinement. Not all factors of variation between hospitals are, however, capable of accounting analysis. Differences in the social backgrounds of patients, for example, influence the probability of recovery, and there are dissimilarities between the three hospitals subjected to study in this respect. Even the refined costs are not more than general indications of the relative effectiveness of ward activities.

The additional costing required to translate the figures given in Table I into those shown in Table III provided much information illustrative of the different clinical and organisational methods in the three hospitals. Perhaps of greater importance than the measure of effectiveness given in Table III, these supporting figures offer a basis for inquiry into the relative efficiency of different approaches to common problems. Two examples of the supporting data, in summary form, are given in Tables IV and V.<sup>1</sup>

<sup>1</sup>These tables are shown in greater detail, along with other supporting cost data in "Mental Hospitals at Work," K. Jones and R. Sidebotham (in course of publication), the report of a study of the relationship between cost and efficiency sponsored by the Nuffield Provincial Hospitals Trust.

**TABLE IV**  
**SHORT-STAY PATIENTS : ANALYSIS OF DRUGS USED**  
 (Percentages of values of issues in May, 1959)

	Hospital A %	Hospital B %	Hospital C %
Tranquilisers... ..	58.1	25.2	62.6
Euphoriants ... ..		31.5	.5
Anaesthetics ... ..	6.1	3.3	
Insulin ... ..		3.8	
Drugs for physical disease ... ..	20.2	17.8	11.2
Others ... ..	15.6	18.4	25.7
	100.0	100.0	100.0

**TABLE V**  
**MEDICAL STAFF : ALLOCATION OF DUTIES**  
 (Percentages of time worked during May, 1959)

Doctors in salary ranges	Clinical care of patients			Administration, meetings, etc.		
per annum	Hospitals			Hospitals		
	A %	B %	C %	A %	B %	C %
£2,000 and above ...	51.0	71.2	45.0	49.0	28.8	55.0
£1,500 to £1,999 ...	86.5	81.8	74.2	13.5	18.2	25.8
£1,000 to £1,499 ...	93.9	72.2	73.1	6.1	27.8	26.9
Below £1,000 ...	94.4	68.9	80.5	5.6	31.1	19.5
Average, all doctors ...	84.6	72.7	69.1	15.4	27.3	30.9

The experiment suggests that there is considerable room for improvement both in the construction of, and in the degree of detail provided by the in-patient department costs at present compiled in the Hospitals Service. In a service in which more conventional tests of efficiency in relation to expense are not available, the additional effort required for the production of more refined and detailed figures might prove well worth while.

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 February, 1960.*



# Manufacturing Industry in the New Towns

Fifteen new towns have been scheduled in Great Britain under the New Towns Act, 1946. These fall into two main groups. First, there are the eight London ring towns, with East Kilbride and Cumbernauld in Scotland which have, as their basic purpose, the relief of overcrowding and industrial congestion in London and Glasgow respectively. In each case, new and self-contained communities of 40-80,000 inhabitants are being evolved, each with its own facilities for work and leisure. By contrast, the other new towns have been created to serve the needs of an existing, or a possible future concentration of industry close to, but outside, their immediate boundaries. Thus Newton Aycliffe in Durham and Cwmbran in Monmouthshire were designated to provide housing accommodation and urban amenities for workers on neighbouring industrial estates then being developed under the Distribution of Industry Acts 1945 and 1950. Corby in Northamptonshire is fulfilling a similar function in respect of its adjacent iron and steel conurbation, though since designation a certain number of alternative employment opportunities (particularly for female labour) have been promoted by the Development Corporation. Peterlee in Durham and Glenrothes in Scotland have been scheduled to provide new industrial communities to serve as the focal points of social and cultural life for a group of miners' settlements; as yet, there is only a very small nucleus of new industry in either of these two towns.

In this article, we shall concern ourselves with the ten new towns in which the development of new industry has been primarily the responsibility of the Development Corporations. These include the London ring towns, Corby and East Kilbride. Cumbernauld is excluded from consideration as it was not scheduled until 1955 and only now is new industry developing. Our purpose is to examine both the type of industrial structure created in these new towns and the economic problems which have been encountered by the Development Corporations in trying to effect a "balanced" distribution of industry. Some



of the more important issues likely to face the communities in question over the next ten years or so are also touched upon, while the article concludes with some general impressions of manufacturing conditions in the new towns as compared with those faced by industrialists in the London region and the Development Areas.

#### THE LABOUR FORCE

It is estimated that at the time of designation, there were some 198 factories operating in the new towns which, between them, employed 27,700 people. In addition another 21,300 people worked in factories adjacent to the scheduled areas. Only three towns, however, Hemel Hempstead, Welwyn Garden City and Cwmbran, could lay claim to any real nucleus of manufacturing experience within their boundaries. Hemel was an ancient municipal borough with a population of 21,200 ; it contained 36 factories, including one large paper works employing nearly 5,000 people. Welwyn was already a flourishing privately sponsored "new town"; founded by Sir Ebenezer Howard in 1919, its economy developed to near maturity during the inter-war years, and by 1948 there were 69 firms employing 8,000 people engaged in a wide range of light industry. Cwmbran, in the South Wales Development Area, had already begun to expand as a result of action taken under the Distribution of Industry Act 1945 ; some 20 firms were operating within its designated area and four other large factories employing 7,000 workers within a radius of six miles. Of the other scheduled areas, Crawley was a small country town with a limited range of light industry ; Stevenage was in the course of becoming an outer suburb of North London, and Basildon, midway between Pitsea and Laindon had a number of small factories dispersed throughout its vicinity. Corby and Hatfield were both in a special position ; in the former case the giant steel works of Stewart and Lloyd's just outside the scheduled area gave work to some 7,500 workers, and in the latter, De Havilland's, similarly situated, employed 11,000. In both towns there was a considerable pool of female labour and since designation special efforts have been made to remedy this situation by attracting firms which employ a predominant

proportion of women. By contrast, at Hemel and Newton Aycliffe, where the opposite conditions applied, most new industries have been largely male-employing in character.

**TABLE I**  
INDUSTRIAL EMPLOYMENT IN THE NEW TOWNS 1957/58

	No. of firms	Male Employ- ment	Female Employ- ment	Total Employ- ment	Females per 100 males
Basildon ... ..	40	3,102	1,618	4,720	52·2
Bracknell ... ..	21	2,044	687	2,731	33·6
Crawley ... ..	61	7,150	2,153	9,303	30·1
Harlow ... ..	55	5,784	2,189	7,973	37·8
Hatfield ... ..	14	243	297	540	122·2
Hemel Hempstead ...	29	3,995	1,095	5,090	27·4
Stevenage ... ..	16	4,878	1,689	6,567	34·7
Welwyn Garden City	14	829	365	1,194	44·0
Corby ... ..	13	82	751	833	915·2
East Kilbride ... ..	8	4,060	830	4,890	24·2
<b>Total ... ..</b>	<b>271</b>	<b>32,167</b>	<b>11,674</b>	<b>43,841</b>	<b>37·0</b>

*Source* : All information in respect of the New Towns contained in this and subsequent tables has been derived from data provided by Development Corporations and appertains to the year ending between 30th Sept., 1957 and 31st March, 1958. It applies only to those firms established since the date of designation.

Table I portrays the present-day distribution of the manufacturing labour force in the London new towns, Corby and East Kilbride. Apart from these new towns, only Cwmbran and Peterlee have attracted any new industry ; in March, 1958, they operated three new factories employing 763 people.

Of the new towns, Crawley and Harlow have so far gained the largest share of new industry : between them, they now account for two-fifths of the new firms and increased manufacturing labour force in the new towns. Overall, while the population of the new towns has risen by 230,000 since

designation, employment in manufacturing industry has risen by 46,456. Except for Hatfield and Corby, where a large proportion of the immigrants have found work in factories outside the designated area, the relationship between the increase in the manufacturing labour force and that of new inhabitants has remained fairly constant, varying from 22% in Hemel, which, as we have seen, was partially industrialised before designation, to 30% in Stevenage, where there was no previous industrial nucleus. The proportion is also influenced by the extent to which the new towns have developed their shopping and commercial facilities. Assuming, however, that the relationship between population and the industrial labour force will eventually settle down to something around the national average of 18%, then, by the time the population of the ten new towns reaches its proposed level of 720,000, the numbers employed in manufacturing industry may well have increased by another 50-60,000.

Compared with a national average of 40.0%, some 62% of the total labour force in the new towns is engaged in manufacturing industry. The figures vary from 54.2% for Crawley and 55.6% for Harlow to 64.0% for Basildon and 67.0% for Stevenage. In part, the higher dependence on manufacturing industry in the new towns reflects the complete absence of certain types of non-manufacturing industry, such as agriculture and mining activities (which account for 7.8% of the national labour force), but more especially the stage of evolution which has been reached. Thus, the proportion of the labour force engaged in the service industries is less in Stevenage and Basildon, where the town centres are not yet completed than in Crawley, Harlow and Corby whose shopping and commercial facilities are more advanced. While the predominance of manufacturing industry will undoubtedly decrease in the future, it is unlikely that it will fall to a level approaching the national average for some time to come. For example, because of administrative complexities, the numbers employed in local government activities in most of the new towns are likely to remain comparatively small and professional and financial services, transport and communications and distributive trades are well below average importance. This unusual

occupational structure will give rise to certain problems in so far as opportunities for female labour and employment stability are concerned.

#### THE BALANCE OF INDUSTRY

What then of the pattern of industry evolved in the new towns? To what extent has it conformed to the ideals originally conceived by the Reith Committee<sup>1</sup> and, more specifically, those later laid down by the Crawley Development Corporation in its report for 1952/53—"to secure a range of manufactures which would spread the risk of sectional slump and afford diversity of employment coupled with a proper balance as between men, women and juveniles?"<sup>2</sup> In answering this question it is proposed to examine briefly some of the more important variables affecting employment stability and growth in the light of the relative advantages of specialisation on the one hand and diversification on the other.

Table II indicates the structure of manufacturing industry in the London new towns, Corby and East Kilbride, classified according to seventeen Standard Industrial Classification groups. Table III presents a somewhat broader classification but gives figures for each of the London new towns. From these tables a number of interesting facts emerge. First, the concentration of employment within the engineering industry. Compared with a national average of 20.4% and a London and South Eastern figure of 25.1%, no less than 49.1% of the total manufacturing labour force in the new towns is engaged within the mechanical and electrical engineering groups. In all, 90 of the 257 firms manufacture such products as machine tools, mechanical handling equipment, contractors' plant, radio and television sets, heating appliances and telecommunications equipment. Of the remaining industries, those also represented above the national average include scientific and photographic instruments, motor vehicles (with aircraft engineering and

<sup>1</sup>See *New Towns*. Committee Final Report, p. 30; 1945-46 Cmd. 6876, xiv.

<sup>2</sup>It is, of course, axiomatic that the exercising of the right to discriminate between industrial applicants in this way itself presupposes some sort of existing industrial nucleus; thus it is only now that the problem facing the Development Corporations in attaining and maintaining a balanced distribution of industry is becoming of effective importance.



**TABLE II**  
**INDUSTRIAL DISTRIBUTION OF LABOUR FORCE IN NEW TOWNS,**  
**GREAT BRITAIN AND THE LONDON AREA, 1957/58**

Industry	New Towns		% of total employment	Great Britain % of total employment	London and South Eastern Area % of total employment
	No. of firms	Employment			
Non-metalliferous mining products	12	1,390	3.3	3.6	2.7
Chemical and allied trades	10	511	1.2	5.9	7.0
Metal manufacture	10	457	1.1	6.4	1.5
Shipbuilding and marine engineering	—	—	—	3.1	1.3
Mechanical engineering	62	9,027	21.3	12.4	12.2
Electrical engineering	28	11,779	27.8	7.9	12.9
Vehicles	7	6,214	14.6	13.5	11.5
Metal goods not elsewhere specified	9	1,537	3.6	5.7	4.6
Industrial, scientific and photographic instruments	25	2,864	6.8	1.6	3.6
Textiles	2	82	0.2	9.9	1.5
Leather, leather goods and fur	1	83	0.2	0.7	1.0
Clothing	21	1,630	3.8	6.8	8.5
Food, drink and tobacco	11	987	2.3	9.8	10.4
Manufactures of wood and cork	16	1,711	4.0	3.1	4.7
Paper and printing	16	1,501	3.5	6.4	11.5
Other manufacturing industries	27	2,662	6.3	3.2	4.9
Total, all manufacturing industries	257	42,435	100.0	100.0	100.0

Source : Statistics for Gt. Britain (March, 1958) and London and South Eastern Area (May, 1957) supplied by Ministry of Labour.

TABLE III.—PROPORTIONAL DISTRIBUTION OF EMPLOYEES IN SEVEN BROAD INDUSTRIAL GROUPS IN LONDON NEW TOWNS, 1957/1958

	Basilidon % employed	Bracknell % employed	Crawley % employed	Harlow % employed	Hemel Hempstead % employed	Stevenage % employed	Welwyn Garden City and Hatfield % employed	All London New Towns % employed
Chemical and allied trades	—	2.4	1.7	3.5	—	—	1.7	1.4
Metal manufacture	—	2.7	8.6	8.2	1.3	4.7	3.9	5.2
Non-electrical engineer- ing and vehicles	41.6	48.9	39.3	11.2	40.4	18.4	48.9	31.4
Electrical engineering, industrial and precision instruments	27.3	27.9	31.7	36.5	45.5	62.2	17.8	38.5
Textiles and clothing	14.3	6.3	—	1.8	0.5	—	7.1	3.0
Food, drink and tobacco	—	—	6.4	—	—	—	10.1	2.0
Other	16.8	11.8	12.1	38.8 *	12.3	14.7	10.5	18.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

\* Including 12.6% engaged in the furniture and cabinet making trade.

motor components) and "other manufacturing industries." These three groups account for a further 27.7% of the total manufacturing labour force in the new towns.

By contrast, the relative importance of the textiles, metal manufacture, chemical, and food, drink and tobacco trades is well below the national average: between them these groups employ only 4.9% of the total labour force compared with 32.0% for the country as a whole and 19.9% for the London area. Overall, the industrial distribution of the new towns is most similar to that prevailing in the London area, with the exception that the food, drink and tobacco, and clothing industries are much less significant in the former case. Each of these trades, however, employs above the average ratio of female to male workers and this is one of the reasons why this ratio, as a whole (see Table I), is lower in the newer communities.

One of the main characteristics of the industrial distributions contained in Tables II and III is that they mirror very accurately the emphasis of recent economic trends. Since for most of the post-war period the national economy has been geared to the development of the capital goods industries it is not perhaps surprising that 81% of the new manufacturing labour force in the new towns is engaged in a similar capacity, while only 19% is to be found in the consumer goods industries, e.g. clothing, food, drink and tobacco, toys, fancy goods, and domestic electrical appliances. At the same time, as the former type of industries are also those most sensitive to economic disturbances, there may well be need for redistribution of employment on this score, particularly in Stevenage, Corby and East Kilbride.

On the other hand, it is encouraging to observe that a large percentage of the working population is engaged within the expanding industries. For example between 1948 and 1956 the national employment in the five industrial groups most well represented in the new towns, viz., mechanical engineering, electrical engineering, motor vehicles, scientific and industrial instruments and aircraft manufacture and repair, rose by 42.6% compared with that in manufacturing industry as a whole of 18.8%. The contribution of these same industries to

the balance of payments is (at present) also of above average significance.<sup>1</sup> For example, the national exports of the engineering, vehicles and industrial instruments group of industries which account for 69.9% of the total manufacturing labour force in the new towns averaged 48.3% in 1957 compared with 36.5% for manufacturing industry as a whole.

As Table III shows there are slight variations in the distribution of industry between the new towns. In certain instances there has been a certain amount of specialisation. In Corby, for instance, 73% of the newly employed have found work in consumer goods industries: in Hatfield 62% are so engaged and in Welwyn Garden City 42%.<sup>2</sup> Basildon claims nine clothing firms, employing 14.3% of the new labour force (a reflection of the fact that this new town draws most of its population from a group of East London boroughs where this industry predominates) whereas, for comparable reasons, the furniture and cabinet-making trades account for 12.6% of Harlow's new employment. By way of contrast, Hemel Hempstead, Crawley, Bracknell and Stevenage each employ less than 15% in consumer goods industries. In Stevenage, 49% of the labour force is engaged in electrical engineering work. Crawley's economy is more broadly based but even in this case some 71% of the industrial labour force is working in the engineering, vehicles and industrial instruments trades, and there is need for more female labour opportunities. Of the other new towns East Kilbride is also highly specialised with 74% of its new labour force engaged in aircraft engineering.

Whatever the advantages of industrial diversification may be, these are of little avail if there is not sufficient occupational

<sup>1</sup>For reasons at least partly similar to those underlying the predominance of capital goods industries. It should, however, be observed that an unduly high dependence on overseas markets may render an industry particularly susceptible to world economic fluctuations, and hence endanger its stability of output and employment.

<sup>2</sup>Notwithstanding, the economies of Corby and Hatfield are inherently unbalanced as in both cases up to three-quarters of the male labour force work in a single factory just outside the designated area. It has been estimated that to ensure anything like a sufficient diversification of industry in these areas both towns would need to expand their labour forces to nearly double their (present) projected size. Corby is particularly vulnerable in this respect as, geographically, it is comparatively isolated.



mobility to allow labour to move freely between different kinds of jobs. There is thus a need both for a choice of employer and a basic group of employees capable of changing from one job to another. This means that at least some degree of occupational specialisation is desirable. In the case of, say, a shorthand typist declared redundant in an engineering works, there may be little difficulty in her finding an alternative job of a similar kind in a different industry. But for the skilled factory operative or laboratory technician, both of whose work is more specific in character and hence less adaptable between industries, the problem may be a very real one. Fortunately to-day, the engineering industry contains a fairly wide group of separate trades requiring similar skills and hence it is possible to enjoy the benefits of occupational specialisation with a certain amount of industrial diversification. This no doubt partly accounts for the predominance of that particular industry in the new towns. Crawley once again would appear to be the most alive to this difficulty, which of course could be a very real one in time of sectional unemployment.

The question of the distribution of skills is also related to that of technological education. Most of the new towns are constructing, or planning to construct, technical colleges which will serve a wider region than the designated area but will nevertheless relate their curricula to the local industrial needs. If there is some specialisation of skills, as already seems likely, it may be easier to provide a balanced curriculum particularly in the more advanced stages. Thus, for example, Hatfield is likely to cater for aircraft engineering, Corby for metallurgy and general engineering, Harlow for electrical engineering and woodwork.

While most of the new towns are by no means geographically isolated, the dangers of a single firm or group of firms becoming excessively large in relation to the total labour force are nevertheless far from negligible. Obviously it is difficult to lay down any general rules: so much depends, for example, on the range of products supplied, their price and income elasticity of demand, and the type of markets served.

But, however conservative a figure one might wish to take,<sup>1</sup> there is little doubt that three at least of the new towns are over-dependent on the prosperity of one large firm. Corby and Hatfield, where, as we have seen, such a large proportion of the people are engaged, respectively, in steel-works and aircraft engineering, are admittedly special cases, but this does not in any way lessen the basic problems at hand. In East Kilbride, 60% of the insured population work at Rolls-Royce Ltd., while at Stevenage, English Electric Ltd. employs 30% of the total labour force. The position in both cases is aggravated by the fact that the firms in question are heavily committed to Government contracts and that, should there be, for example, a sudden curtailment of defence expenditure, serious employment difficulties might well arise.

It is, of course, true that each of the new towns mentioned is still in its early stages of growth and that there are certain advantages in attracting one or two large well-known national concerns bent on expansion, rather than a large number of smaller companies. Moreover the fact that such an enterprise has expressed its faith in this way often stimulates the setting up of other concerns. But the need nevertheless remains for further diversification of industry, and this as quickly as possible.

The size dispersion of firms in the other new towns would seem reasonably appropriate. Of the 271 firms, 227 employed less than 250, 38 employed between 250 and 1,000, and 6 employed more than 1,000. They provided for 33.4%, 38.5%, and 28.1% of total employment. All the larger firms were in existence prior to manufacturing in the new towns, and their interests there represent either a complete transfer of factory premises or newly established branch units.

The last column of Table I indicates the number of women employed per 100 men in the new towns. The figure of 37.0 is considerably below the national average of 46.3, and even more so than that of the London and South Eastern region of 50.3.

<sup>1</sup>It has been suggested no one firm in a particular geographical area ought to be responsible for more than 10% of the industrial employment in that region—unless its range of products is highly diversified. See W. F. Luttrell, "Industry and small town expansion." *Official Architectural and Planning Review*, August, 1955. Vol. 18.

The causes for this are not difficult to find. First, since over three-quarters of the potential female labour force in the new towns are married with children of ten years or under, the proportion actually seeking work in the new towns is much below the national average. Normally juvenile labour would account for about one-tenth of female employment, but because of the age-structure of the parents in the new towns, the proportion is only one-twentieth. There are also fewer spinsters, and considerably less women with children of school age or above. The supply of female labour is thus very limited at present, though in the course of the next decade it is likely to increase markedly with important repercussions on industrial recruitment. Moreover, though the pattern of industry has been strongly influenced by the age structure of the population, the specific problems in regard to the balance of the sexes have differed somewhat between the new towns. As has already been mentioned, Corby and Hatfield have made special efforts to attract predominantly female-employing industries because of the lack of existing opportunities. At Basildon, female employment is more abundant partly because some of the new firms, e.g. those in the clothing industry, brought their own labour with them and partly because of the already existing pool. On the other hand, since the existing female labour force at Hemel Hempstead was already fully occupied, new industry had to be predominantly male-employing; in the other new towns there was hardly any surplus female labour.

In addition, the policy of most Development Corporations has been to make houses available to male heads of families only: this is in keeping with the need to disperse the maximum number of people and to house them as efficiently as possible. More recently, however, in an attempt to secure a greater measure of sex balance in industry and as the tertiary industries have started to develop, some Corporations have made a special effort to attract female labour by offering them flats and bungalows.

If one projects ahead ten years or so, opportunities will naturally arise for juvenile labour in commerce and distribution but it is doubtful whether these will be sufficient to absorb the

increasing number of school leavers.<sup>1</sup> On present indications, by 1968 between four and five times the present number of teen-agers will be looking for jobs in the new towns. Moreover, as the rate of retirement of existing workers is unlikely to be substantial for the next twenty years these will represent a net addition to the labour force. Assuming the pattern of immigrants for the next five years is similar to that prevailing to-day, and making allowances for the natural change in the age composition of the population, this means that the total potential labour force will double itself by 1965, and possibly treble itself by 1972. Bearing in mind the needs of industrial balance mentioned earlier, it would thus seem that, of the types of firm which ought to be encouraged to manufacture in the new towns, those employing (i) a high percentage of juvenile labour and (ii) an above average female/male employment ratio, deserve special consideration. Of the former, according to the national statistics, the most appropriate would appear to be the woodworking, precision instruments, machine tools, electrical machinery trades,<sup>2</sup> while the industries most reliant on female labour include clothing, printing and publishing, pharmaceutical preparation and food, drink and tobacco. Assuming that the pattern of industrial distribution in London might be as appropriate to the economy of new towns, then most of these trades listed should find conditions suitable. In addition, industry will have to be mindful of the possible effects which automation will have on the demand for unskilled labour. There is need too for starting apprenticeship and related trainee schemes. Advanced education will be met by the technical colleges. The fact that highly qualified personnel will become available has a bearing both on the types of firm likely to be attracted to the new towns and their administrative structure.

Studies in the costs of alternative locations have frequently underlined the dangers of a particular geographical area

<sup>1</sup>At the present moment 34.7% of the national working population is engaged in distribution, commerce, the professions, and local government: the corresponding figures for the three London new towns most advanced in this respect are Harlow 24.9%, Hemel Hempstead 25.5% and Crawley 38.9%.

<sup>2</sup>See *Ministry of Labour Gazette*, June, 1959, p. 206.



becoming too dependent on the activities of branch plants for their industrial prosperity. There is always the possibility, which was borne out by the experiences of radio firms in the South Wales Development Area in 1951/52, that, should a recession develop, it is the branch plant which is the first to curtail its output, and this particularly so where it is simply duplicating the products manufactured by the parent company. In addition, from a social viewpoint, the presence of management and senior technical staffs in the new towns is desirable in that it provides a valuable "middle class" element. In actual fact, 188 of the 271 firms in the new towns are "plant removals from other parts of the country." Only 69 are new branch units of companies with their headquarters elsewhere. It is, of course, true that these latter firms are generally larger than the average and account for 44% of the total labour force. Five of the six firms employing 1,000 workers or more are branch units and the majority of those employing between 500 and 999 workers. In very few instances however does it appear that these plants are simply duplicating the products of their parent units. In several cases, they are producing altogether distinct products ; in others, parts and components for the parent company. Only in a handful of cases could the firm be considered purely as an overflow unit of the parent concern. Branch plants appear to be rather more prevalent in Corby and Basildon than elsewhere ; otherwise the dispersion would seem fairly even.

Of the firms which have transferred their businesses—mostly from London—the majority were small companies employing 50/75 people at the time of removal. Cramped accommodation, antiquated premises, and requisitioning orders have been the most often quoted reasons for the initial move. The interesting thing is that of the firms established before 1st January, 1955, between two-thirds and three-quarters have since extended their premises.

A handful of firms are completely new ; in addition, there are a number of businesses operating in "nursery" factories of 2,000 sq. ft., which have proved especially popular in several new towns.

## INDUSTRIAL PROSPECTS

Is it then possible to summarise the above points by pointing to a particular structure of industry most likely to ensure the future prosperity of the new towns? The question is a particularly difficult one, for the situation is not comparable to that facing, for example, the Development Areas ten years ago nor is it simply a matter of introducing a limited range of industry into a rural area. The new towns are a unique experiment in that industrial communities are being built up *ab initio* and in such a way as to bring certain inevitable problems, e.g. those relating to age and sex distribution.

Even if we confine ourselves to the London ring towns the matter is only slightly less complicated. If one looks for a standard of measurement by studying the industrial pattern of towns of like size and approximately equal distance from the capital, one is faced with the fact that in almost every case there are a large number of commuters. Certainly this would apply to the inner ring towns, e.g. Dartford, Watford, Reigate and Redhill, St. Albans, etc. At the 30 mile radius, Guildford and Chelmsford are unrepresentative as neither economy is principally dependent on manufacturing industry for its prosperity. The nearest perhaps, one can come to making any worthwhile comparison is to examine the structure of the Slough industrial concentration which employs some 35,000<sup>1</sup> people, most of whom live in the immediate vicinity. The occupational distribution of the industrial labour force is compared to that of the new towns in Table IV. Here the main feature worthy of note is the broader basis of industry in the Slough area. There is considerably less dependence on the metal-using trades and considerably more on the fine chemical, food, drink and tobacco industries : on the whole the consumer goods industries are better represented and the opportunities for female labour more pronounced.<sup>2</sup> At the same time it is to be remembered that the Slough estate was developed mainly before the Second World War when economic circumstances were different from those of to-day and when businessmen were perfectly free to site their enterprises as they chose.

<sup>1</sup>67.4% of the total labour force.

<sup>2</sup>For every 100 men employed there are 50 women.

TABLE IV

INDUSTRIAL EMPLOYMENT IN THE NEW TOWNS (1957/58) AND SLOUGH INDUSTRIAL AREAS (END-MAY, 1957)

	New Towns		Slough Industrial Area	
	Nos. employed	% of total employment	Nos. employed	% of total employment
Chemical and allied trades *	511	1.2	4,587	13.0
Metal manufacture	1,994	4.7	4,407	12.5
Non-electrical engineering	9,027	21.3	8,016	22.7
Electrical engineering	11,779	27.8		
Vehicles	6,214	14.6	4,347	12.3
Industrial, scientific and photographic instruments	2,864	6.8	1,728	4.9
Textiles and clothing	2,795	4.2	2,241	6.3
Food, drink and tobacco	987	2.3	4,678	13.3
Paper and printing	1,501	3.5	1,051	3.0
Other manufacturing	5,763	13.6	4,224	12.0
Total	42,435	100.0	35,279	100.0

\* In both the New Towns and the Slough Industrial Area, employment is almost wholly concentrated in the fine chemicals, paint and varnish sections.  
 N.B.—Data for Slough Industrial Area kindly provided by Ministry of Labour.

It is, however, possible that some factories now operating in the new towns would not be in their present location had necessary permission been granted for their establishment elsewhere.

In an earlier study of the industries which might be suitable for dispersion to rural areas,<sup>1</sup> Professor Sargent Florence listed several trades, e.g. electrical apparatus, cabinet and furniture making, printing and book-binding, food, drink and tobacco, clothing and toys and games, etc., some of which are now well represented in the new towns. Florence used a negative

<sup>1</sup>"The Selection of Industries for Dispersal into Rural Areas," *Journal of the Royal Statistical Society*, 1944, Vol. CVII, Pt. II.

criterion of locational desirability, in that, while recognising that rural areas have few positive advantages to offer new factories, there are those industries—designated as “footloose”—whose production costs would seem to be little affected by their actual siting. These are in contrast to those trades whose location is more or less rooted by that of their markets or raw materials, or those which are linked, e.g., by way of manufacturing processes, with other industries or firms. In the case of the new towns, however, where there is a deliberate policy to evolve an industrial conurbation, it is important to take a long-term viewpoint, since certain economies of manufacturing will only become apparent once the estates are well on their way to completion. Present production costs are thus not always a good guide to ultimate production costs.

More recently, several attempts have been made to estimate whether the production costs of those firms persuaded by the Board of Trade to establish manufacturing units in the Development Areas are higher or lower than they might have been had they been allowed to choose their own location.<sup>1</sup> Though the techniques of comparison used in these surveys were necessarily crude, we may, perhaps, profitably apply them in respect of the new towns. The following, then, are some impressions and observations of cost and production conditions in these communities, as related to those in the Development Areas and the London region. First, are there any factors which normally influence costs which in this particular case may be treated as constant? Broadly speaking, in each of the three areas, providing he can obtain the necessary permits, there is no reason why an industrialist should not build an identical factory and equip it exactly the same way. However, the cost of land and building operations will vary, being highest in London and lowest in the Development Areas. Alternatively, a firm might prefer to rent an existing or a newly-built factory in which case his choice, in effect, is

<sup>1</sup>See, for example, D. C. Hague and P. Newman, *Costs in Alternative Locations: the Clothing Industry*, Paper XV of the National Institute of Economic and Social Research. Cambridge University Press, 1952, and D. C. Hague and J. H. Dunning, “Costs in Alternative Locations: the Radio Industry,” *Review of Economic Studies*, 1954/55, Vol. XXII, No. 59.



restricted to the Development Areas or the new towns. In our experience, the accommodation offered in both cases is first-class and, except, perhaps, for a little more willingness to cater for individual requirements by the Development Corporation, there is little to choose between the two locales. And, certainly, irrespective of his choice of location, there is nothing to stop the industrialist employing virtually the same production methods (the only variable factor being the marginal difference in the cost ratios of the productive services).

The differences are more marked than the similarities. In favour of the Development Areas is the fact that factory rents are generally only about one-third of those in the new towns<sup>1</sup> and about one-quarter of those in the London area. From a sample of rates and public utility tariffs studied, these too would appear to be slightly cheaper in the Development Areas than in either of the other two regions.

Labour costs are a function of both the wages paid and the productivity of the worker. As regards the former, in the new towns these are, in practice, comparable to London rates (and hence higher than in the Development Areas) partly because employees who move out from the capital expect to maintain their money incomes (and this means the newly established firms have to offer similar amounts), partly because living costs are generally as high, and in some cases, higher in the new towns. Unskilled labour is generally much less plentiful than in the Development Areas—particularly female labour which is often at a premium in the new towns and can command more than the minimum union rates. In all three areas skilled labour is difficult to come by and variations in rates mainly reflect cost of living differences.

Productivity is notoriously difficult to measure. Most of the main productive services, e.g. factory accommodation, capital equipment, entrepreneurship, etc., are not, in this instance, influenced by locational considerations. The main

<sup>1</sup>In the new towns these average 5/6-7/- sq. ft. according to location, size and type of factory; in the Development Areas the corresponding range is between 1/6-2/6 per sq. ft. For a 50,000 sq. ft. factory of comparable design and constructional quality the difference would be around £10/12,000 a year. In the London area, the range of rents is even wider—as a guide, between 7/6-10/6 for the type of accommodation in question.

variables are, in fact, the quality of labour and its attitude to work. Here the important difference between conditions in the new towns and those in the Development Areas is that the average wage-earner in the former is usually far more experienced in his work, either because factories who remove from the London area bring most of their workers with them (the usual proportion is 75–80%) or because skilled labour is not difficult to recruit owing to the attraction afforded by a new house. Productivity is thus higher in the new towns, at least for an initial period, while suitable workers are being trained in the Development Areas. Some firms in the new towns however, have found that shift work is less readily accepted by their employees than previously, mainly, it seems, because of its domestic unpopularity now wives are without the company of their relatives. It is generally thought that the response of the labour to incentives is also more pronounced in these areas as early commitments of new town dwellers are usually very heavy with large sums of money being spent on purchasing furniture, etc. for the new homes (and high rents). This has lessened absenteeism to below the level previously experienced and that usually experienced in the Development Areas. Compared too, with their previous location, firms are finding that the improved living conditions of their staff and the shorter distances they have to travel from home to work, make for more sustained labour effort. The lower proportion of women at work in the new towns has usually meant a lower rate of absenteeism, except where relatives are far removed and mother is ill, in which case father has to stay away to look after the children.

Labour turnover is influenced by many factors. Usually factories on industrial estates tend to find removals high. Some firms in the new towns have concluded "gentlemen's agreements" not to poach on each other's labour. Nevertheless there is often quite a high turnover to begin with—particularly in the case of branch units and mainly in the lower grades of skill, where a worker has joined the firm primarily to get a house rather than because he is interested in the work. It is perhaps unfortunate that at one period when new industrial developments were moving particularly rapidly in the new

towns, that a large firm adjacently sited—Vauxhall Ltd. of Luton—was demanding large quantities of labour (and paying 25% above the average wage-rates) and that there were insufficient houses to enable local recruitment. Employers in Stevenage and Hemel Hempstead were particularly embarrassed by this situation at the time. Where female labour is employed, turnover is particularly high for pregnancy reasons—one firm noting its turnover in this respect in 1957 was 22% compared with the national average of 4%. Nevertheless the record of the new towns, as a whole, is encouraging. Crawley, for example, reports its labour turnover as less than half the national average in 1957.

What of administration costs? To begin with, industrialists setting up in the new towns have often had to incur a number of additional costs as a result of imperfect synchronisation between their demand for labour on the one hand and the provision of houses on the other. Houses are rarely completed in large batches whereas a production programme is, to some extent at least, indivisible and a firm usually wishes to engage large numbers of workers at a time. In spite of every effort made to stagger production this has meant that personnel have often had to travel daily from London to the new towns or *vice versa* for a limited period of time—anything up to 18 months—with the employer bearing the differential cost of fares. Then there is the question of industrial site layout. In these days, when it is the aim of the planner to make an industrial estate look anything but what it is, the costs (e.g. of camouflaging chimneys and ugly buildings, screening of yards, gardens round buildings, etc.) are more important than hitherto, and this is probably more so in the new towns than in the Development Areas. Furthermore, due to the comparative lack of social amenities in the new towns, some of the larger firms have had to provide additional canteens and recreational facilities for their workers, whereas the unusual age structure of the female labour force has increased the need for nursery and playground facilities for young children.

Firms moving from London are naturally finding their communication costs considerably higher.<sup>1</sup> In most cases the telephone bill has been multiplied several times : what was previously a 3d. call (e.g. to suppliers or customers in the London area) is now 1/3d. or more ; in addition, there is a certain loss of flexibility and speed in meeting urgent production requirements. At the same time, where possible, most factories in the new towns are deliberately sited as near to their original place of production or main works as possible. Since it appears that the extra communication costs associated with the operation of a branch increase substantially once this distance exceeds 30 miles,<sup>2</sup> the new towns gain considerably on the Development Areas in this respect. Some new factories are better provided with transport facilities than hitherto ; e.g. several firms in the Temple Fields industrial estate at Harlow have their own railway siding. Communication and managerial costs naturally vary according to the type of branch operated : whether, for example, it is a separate entity functioning independently of its parent unit employing its own executive staff or whether it is solely a production unit. The fact that most branches are manufacturing quite different products from their parent concerns means that a separate administration is often required. On the other hand, a number of firms who have transferred their manufacturing facilities *in toto* have found it convenient to retain a London sales office and/or service depot.

Lastly, transport costs. Compared with their original location, transport costs inwards and outwards differ very little (e.g. it is cheaper to buy from and market to the Midlands and North than previously but dearer to Central London) : the main exception is the case of imported raw materials (e.g. timber, copper, etc.) which have to be brought from the London docks, and end products which are destined for the Metropolis or exported from there. Even here, however, the basic costs of loading and unloading are constant and as we have seen, there is not more than thirty miles in it either way.

<sup>1</sup>The exception is where one factory has replaced a group of dispersed units in London.

<sup>2</sup>Hague and Dunning, *op. cit.*, p. 207.



TABLE V.—IMPRESSIONS OF COSTS IN ALTERNATIVE LOCATIONS

	(a) Costs in New Towns compared with London Area *	(b) Costs in Development Areas compared with London Area	(c) Costs in New Towns compared with Development Areas
(1) <i>Labour costs</i>			
(a) Price of labour			
(i) Unskilled	About the same or a little lower	Considerably lower A little lower	Higher Slightly higher
(ii) Skilled			
(b) Productivity of Labour †			
(i) Technical efficiency	Probably very slightly higher due to reduced travelling fatigue	Considerably lower	Generally higher particularly in early years of production
(ii) Incentive to work	More pronounced particularly in early years of production		Generally, more pronounced
(iii) Labour turnover	Given similar circumstances, probably a little greater	Slightly higher	About the same
(iv) Absenteeism	Generally a little lower	Higher	Generally less
(2) <i>Rents and Building Costs ‡</i>	Somewhat lower	Very much lower	Appreciably higher
(3) <i>Service Costs</i>	Much the same	Somewhat lower	Slightly higher
(4) <i>Administrative and Communication costs</i>			
(a) Telephone and postage	Considerably higher	Very much higher	Lower
(b) Extra travelling by executives, etc.	Higher	Very much higher	Considerably lower
(c) Other managerial costs	Slightly higher	Very much higher	Considerably lower
(5) <i>Transport Costs</i>	Slightly higher	Considerably higher	Higher
(6) <i>Total Costs</i>	Slightly lower	Slightly higher	Lower particularly in the early years of production

\* Assuming an extension of, or an adjacent factory to, existing works.

† Assuming a given plant layout and capital equipment.

‡ Assuming present scales of subsidies, etc.

Here, also, the new towns gain on most of the Development Areas except where these latter are satisfying a localised market. The differential cost is the greatest where branch plants are supplying the main works with components and parts, or where the markets for the products in question are in the South or Midlands.

Table V summarises these broad impressions. Thus it can be seen that while the prices of most factor services in the new towns are somewhat higher than those in the Development Areas, there are equally important savings in the form of higher labour productivity, and lower communication and transport costs. Compared with the original place of manufacturing (or location of the main works), the new town industrialists score slightly on their lower labour costs and rents, which, after the initial period of "settling-in," are sufficient to outweigh the higher transport and communication costs. The Development Areas, if anything, come off worse in these comparisons, with overall costs working out at 1-2% of turnover above those in the London Area,<sup>1</sup> and similarly in excess of those in the new towns.

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<sup>1</sup>Hague and Newman, Hague and Dunning, *op. cit.* Though these studies were carried out some years ago there is no reason to doubt the substantial validity of their conclusions when applied to present-day circumstances.



# The South Wales Sliding Scale, 1876-1879: An Experiment in Industrial Relations

The history of an early example of the adoption in a major coalfield of a sliding scale which linked changes in wage-rates with variations in the selling price of coal has a more than local interest. It was no isolated innovation. In the later nineteenth century the device spread, for shorter or longer periods, to most English coalfields, to Lanarkshire, and to the anthracite mines of America. It illustrated the general desire of both owners and men for a durable agreement about wage-rates and some easy, almost mechanical, method of adapting them to changes in selling prices in an industry where wages formed a large element in costs and where price fluctuations revealed a considerable range and frequency. If a scale achieved these ends it enabled the mines to work more regularly because not only were changes in wage-rates achieved without industrial stoppage but also because coalfields could better maintain their competitive position when costs were quickly adjusted to market conditions. The scale also formed part of the general movement towards a more conciliatory stage in industrial relations when both sides were willing to form a joint committee to discuss industrial differences. It was, too, an arrangement appropriate to the phase when men's unions were fitfully growing to strength without having acquired it and when, accordingly, they were still prepared to accept the selling price of coal as the prime factor governing their wage-rates—particularly if the safeguard of a minimum were conceded. This early experience of the scale in South Wales, however, also demonstrated that it was no facile panacea—neither a full conciliation board nor frictionless adjustment to the instability of the industry was in fact achieved.

## I

For the first five months of 1875 the bulk of the South Wales coal industry was idle because of a wage dispute, the



third major stoppage of the industry in the short space of five years. There was, however, an essential difference between the strike of 1875 and the stoppages of 1871 and 1873. The earlier disputes had taken place against a background of rapidly rising coal prices which had enabled the miners to emerge from them substantially victorious ; by the beginning of 1875 prices had already been falling for nearly a year and this continuous decline in trade, together with the steady fall in union membership which accompanied it, created a situation much more favourable to the employers.

During the decline from the unprecedented boom conditions of the early 1870's the men had already accepted two wage reductions—each of ten per cent.—since May, 1874 ; it was the demand for a further reduction of ten per cent. which the employers wished to enforce from 1st January, 1875 that led to the 1875 struggle. As the strike dragged on it became increasingly clear that the colliers, who steadily drifted away from a union which was unable to offer them any significant support, must eventually succumb ; and the owners, for whom the prolonged strike was costly and who could see no sign of a trade revival, tended to stiffen their terms. The final settlement, which was concluded on 28th May, was, nevertheless, more moderate than many of the owners would have wished. It provided for a reduction of  $12\frac{1}{2}$  per cent. in wages—which was more than had been demanded in January but less than many owners considered appropriate in May. This reduction was, however, subject to an important qualification : it was to apply for three months during which time a joint committee of twelve (six from each side) was to negotiate the details of a sliding scale under which future changes in wage-rates were to be regulated by variations in the selling price of coal.

This brief background helps to throw some light on the attitudes with which the two sides entered upon the first sliding scale agreement. Generally speaking the owners at this time accepted the new principle with reluctance and misgivings. The reasons for this are obvious and substantial enough. During the coal “famine” of 1872-3 the abnormally high earnings which had accompanied the soaring prices had, in the owners' view, made the men more unruly and unmanageable.

The owners, therefore, were reluctant in 1875 to grant any concessions to the men, not only because they considered that a substantial reduction in wages was unavoidable but also because they viewed the struggle as "largely an attempt to impose discipline."<sup>1</sup> From this standpoint it was important that the employers should not merely win the struggle but that they should be unequivocally seen to win it. Most of the owners, moreover, welcomed the evident decline in union strength and were opposed to any solution that contained an element of arbitration which, it was considered, would give "fresh life to the Unions that are now dying out."<sup>2</sup> For both these reasons the sliding scale principle was not widely welcomed by the owners. On the other hand the owners genuinely desired to find some way of avoiding the ruinous conflicts which had beset the industry in recent years. It was undoubtedly the strength of this desire which enabled the minority of influential coal owners, who took a strong stand in favour of the sliding scale principle, to carry the day.

Once the owners had decided on this policy they met with ready co-operation from the men's leaders. To be sure, the view that "the men were compelled to accept a Sliding Scale"<sup>3</sup> has plausibility since its introduction followed a long strike in which they had been clearly defeated.<sup>4</sup> Nevertheless this view cannot be sustained. One of the miners' leaders, Henry Mitchard of Blackwood, had, even before the strike began, urged the Employers' Association to adopt a sliding scale.<sup>5</sup> Moreover the evidence of both the records of the negotiations and the contemporary press reports suggests that the miners' leaders—far from resenting the principle as an imposition—welcomed it as the winning of a significant concession. There were good

<sup>1</sup>*Owners' Association Minutes*, 28th May, 1875.

<sup>2</sup>*Ibid.*, 14th Aug., 1874.

<sup>3</sup>G. D. H. Cole, *A Short History of the British Working Class Movement, 1789-1947* (London, 1948), p. 183. A similar view is implied in R. Page Arnot, *The Miners* (London, 1949), p. 60.

<sup>4</sup>This view also seems plausible because the ultimate effect of the automatic adjustment of wage-rates under the scale was to retard the growth of trade unionism in South Wales. This, however, became apparent only later; it was by no means obvious—or, indeed, inevitable—in 1875.

<sup>5</sup>*Colliery Guardian*, 12th June, 1874.

reasons for this attitude. By May it was obvious that the colliers' long resistance was crumbling. Thus the sliding scale presented itself as a promising "face-saver" for the men's leaders because it brought gains which offset the loss of the immediate reduction of wages. It had secured the granting by the owners of some recognition to the workmen's representatives. Moreover it liberated future variations in wage-rates from the arbitrary control of the employers. Much of the stubbornness of the men's resistance to the proposed reduction in January, 1875, had derived from its seemingly arbitrary nature. They had already accepted two reductions in the previous seven months; they argued that the owners should now be obliged to demonstrate, not simply to assert, the necessity for this additional cut, and that the final verdict should be left to some impartial outsider. The sliding scale did not go as far as this, but since it made future wage changes subject to a clearly ascertainable regulator—the average f.o.b. price of coal—the men could fairly claim that their demands had been partially met.

A further reason for the welcome the men's leaders gave to the sliding scale rested on less solid grounds. The provision that any disputed points which arose in the bargaining over the terms of the scale could be referred by the joint committee to an umpire for final decision led them to state, in their circular to the colliers, that "from this it will be seen that the masters have conceded the principle of arbitration in all future disputes." As later events showed, this greatly exaggerated the concession which the owners had made.<sup>1</sup>

On 28th May, 1875, the agreement which ended the bitter, five-month struggle was signed. The employers thereupon invited the men's representatives to dinner—"a sumptuous repast" with an "abundant supply of champagne"—and the belief grew that the day's agreement was likely to have some permanence.<sup>2</sup> The belief was, in part, prophetic because, apart from one short interval, the wage-rates of the South Wales

<sup>1</sup>*Colliery Guardian*, 28th May, 1875.

<sup>2</sup>*Ibid.*, 4th June, 1875.

colliers employed in the pits of the Associated <sup>1</sup> owners remained regulated by a sliding scale until the end of 1902. In part, it was delusively optimistic because the first wage scale survived for less than four years, dying, as it had been born, in a stoppage of work over a wage reduction. Nevertheless in this first scale, brief though its life was, there was much of interest : the issues raised during the bargaining over its creation ; the degree of control that the joint committee considered that it could appropriately exercise over the course of industrial relations ; the difficulties of the application of the scale in a period of falling selling prices of coal ; and the extent to which both sides, learning from the experience of these four years, modified their initial attitudes to the scale.

## II

The friendly feelings which were engendered when the strike was settled were soon disturbed. Indeed before the joint committee formed to devise a scale had even met a personal squabble arose which threatened to wreck the whole scheme. In a heated speech during the 1875 strike, Alexander Macdonald, M.P., had denounced the great families of Wales who, he said, had enriched themselves at the expense of the workers. He had expressed the hope that, when the social history of Wales came to be written, "names like those of Crawshay and Fothergill, and Vivian, and Davies, and others would go down to posterity with infamy as poltroons who attacked women and children." <sup>2</sup> When Macdonald was selected as one of the workmen's representatives, Henry Hussey Vivian, although he sat in the House of Commons with Macdonald as a member of the same party, and although he had himself urged the importance of forgetting the bitter feelings engendered by the strike, declined to sit with him. The owners, reluctant to follow the easy path of accepting Vivian's resignation, wanted Macdonald to apologise before the joint committee met, whereas the men

<sup>1</sup>The sliding scale agreement applied only to the colliers employed by members of the Coalowners' Association, although, normally, it had a considerable influence on the wage policy of the owners who were not members.

<sup>2</sup>*Colliery Guardian*, 24th Sept., 1875.



reasserted their faith in Macdonald.<sup>1</sup> Ultimately both Vivian and Macdonald resigned and the sliding scale discussions were thus undertaken by a committee of ten members, but the incident had revealed how quickly the feelings of both sides could still be aroused.

In the bargaining that ensued, both sides felt that they had claims which deserved special consideration. The owners wanted a price-wage relationship which would give them a sufficient margin to cover the interest they could have received by investing their capital elsewhere and, in addition, a further return to cover the extra risk of mining and to provide for capital redemption. Moreover, the owners claimed that recently their costs of production had risen, largely through the operation of the Mines Regulation Act of 1872 which extended the compulsory safety precautions and which, through limiting the hours for boy workers, had in effect limited hours for all.

The workmen claimed that the wage-rate should be fixed sufficiently high to compensate them for the recent increase in food prices and house rents. They suggested that, to maintain wages, the owners should keep up prices by a deliberate restriction of output. The men were, in effect, asking that instead of wages being regulated by prices, prices should be regulated by wages; that there should be a minimum level of wages which could be guaranteed if coal prices were prevented from falling below a corresponding minimum level.

The proposal for a policy of price maintenance was rejected outright by the owners as both impracticable and unsound in principle. It implied a greater control of the market than the owners of South Wales possessed. Welsh coal, heavily dependent as it was on export markets, was subject to the competition from coal produced in other mining districts, both British and

<sup>1</sup>*Western Mail*, issues 1st Sept.-15th Oct., 1875. The men's choice of Macdonald is explicable by his position as an acknowledged miners' leader. Possibly, too, his mistrust of sliding scales had not yet hardened into vocal opposition. Macdonald welcomed the principle of joint consultation embodied in the Welsh experiment. It was the spread of this "principle of arbitration" which occasioned his comment in mid-1875: "Look at the glorious state of things in England and Wales." See S. and B. Webb, *The History of Trade Unionism* (London, 1920 edn.), p. 338.

foreign. This issue apart, however, compromise was likely as both sides were vividly aware of the loss and misery that a resumption of industrial strife would occasion. The sense of the importance of the discussion may be inferred from the proposal that Gladstone, Premier of England until the defeat of his party in the 1874 election, should be invited to act as umpire—although in the end the committee had to rest content with the less ambitious choice of the Rt. Hon. Arthur Lowe, late Home Secretary.<sup>1</sup>

Before the end of the year a scale had been agreed, based, with modifications, on the price-wage relationship which had existed in 1869. Both sides, as a rough compromise, accepted this as a "standard" year which was representative of economic conditions before the abnormal boom of the early 'seventies. But some recognition was also afforded to the special claims of each side. Thus the minimum wage-rate was to be five per cent. higher than the rate paid at the respective collieries in 1869 to compensate the increased cost of living since that date. The selling price accepted as equivalent to this minimum wage-rate was 12 shillings a ton for the steam-coal collieries and 11 shillings a ton for the bituminous collieries, these prices—higher than those which had prevailed in 1869—being taken as covering all the claims of the owners in respect of the extra cost of producing coal under the Mines Regulation Act of 1872.<sup>2</sup>

Account was taken of the diversity of the industry by dividing the collieries of the Association into three groups, consisting of the steam-coal collieries, the bituminous collieries of Monmouthshire and the Caerphilly district of Glamorgan, and the bituminous collieries of the rest of Glamorgan, a group which included most of the collieries in the Neath and Swansea districts. To balance the minimum wage-rate inserted into the scale there was also provision for a maximum. Wage-rates were

<sup>1</sup>*Minute Book of Joint Committee.* 28th Oct., 10th Dec., 1875.

<sup>2</sup>*Colliery Guardian*, 31st Dec., 1875. It was clearly to the interest of the owners to fix the selling price that was to be equivalent to any given minimum wage-rate as high as possible. Had the 1869 selling price of (roughly) 9 shillings been taken as equivalent to the minimum wage-rate in the steam-coal collieries the men would have received an increase when the price rose to 10 shillings. As it was under the scale they did not get an increase until the selling price of steam coal rose to 13 shillings a ton.

to rise by  $7\frac{1}{2}$  per cent. for every complete shilling increase in price until the prices reached 21 and 20 shillings for steam and bituminous coals respectively. Thereafter, however high prices might go, wage-rates were to remain unchanged. To set the scale in motion the average prices at which coal had been sold in November and December, 1875, were to determine the wage-rates paid for the first six months of 1876; subsequently rates were to rise or fall according to the audits of prices covering six month intervals. Either side could end the operation of the scale by giving six months' notice.

### III

The results of the first audit, declared in February, 1876, showed that coal had been selling at prices of between about 10s. 8d. and 11s. 3d. for the three groups, prices which were sufficiently low to justify a general reduction of wage-rates to the minimum. The colliers who had gained most from the fluctuating trade conditions of the early 'seventies now lost most. While the steam-coal men were faced with a seven per cent. reduction in the wage-rates they had been recently receiving, the reduction for the bituminous-coal colliers in most of Glamorgan amounted to  $21\frac{1}{2}$  per cent. and to even more in some of the Monmouthshire collieries.<sup>1</sup> A host of minor difficulties arose when attempts were made to apply this award. Some of the colliers complained that these reductions brought their wage-rates below the agreed minimum of five per cent. added to the 1869 rates, while others complained that they were excessive for types of labour other than hewing—for example, the ripping of roof, the making of headings, and the work of the hauliers—which had not shared fully in the general advance of wages in the recent boom. There were men, from some Monmouthshire collieries especially, who claimed that their wages had been below the general rate in 1869 and that these had since been "levelled up," so that the strict application of the award to them would reimpose injustice. Difficulties arose, too, over collieries which had been idle in 1869 or had been sunk since that date, while at other collieries it was claimed by the owners or the men, according to who

<sup>1</sup>*Colliery Guardian*, 18th Feb., 1876.

would benefit by a change, that their colliery was included in an inappropriate group. These complaints were brought before the joint committee, a body which, having devised the sliding scale, was now reconstituted into one to administer it. The principles which were to govern the committee's policy did not immediately emerge as at first it took no decisions but merely limited itself to hearing evidence from both sides, supplemented, if necessary, by the production of colliery pay sheets. If further investigation was required the committee deputed two of its members, one chosen from the owners' representatives and one from the men's, to visit the colliery to meet the officials and the men and to enquire more fully about local conditions. The committee did, however, publish in the press its resolution that it would not consider disputes which had already led to a stoppage of work or to the handing in of notices to terminate contracts, as it was only by refraining from such precipitate action that the men could conform with the spirit of remedying grievances by discussion and mutual understanding which the committee represented.

Nevertheless it soon became clear that, contrary to the expectations of the men, the committee was not to develop into a general board of conciliation. After considerable discussion the view of the owners' side—that the committee existed simply to enforce the sliding scale award and to allow no departure from it in any particular—prevailed. The grievances already submitted to it were decided on this principle, while in some complaints it declined to interfere. It took no action in a dispute at Crawshay's Gethin and Castle pits, for example, where the colliers were dissatisfied both with the allowance for "clod" (rubbish) contained in the seam and with the rates paid for ripping roof, as the committee said that it was not its province to adjust any dispute between owners and men once the rate had been fixed. It did nothing to appease the hauliers even though the workmen's representatives on the committee "strongly urged" it to make "some trifling concession"—even if only  $\frac{1}{2}$ d. a day—"so as to keep so important a class as the hauliers at peace." The committee, to avoid the possibility that the knowledge that it had at least discussed the hauliers' complaints might delude other



workmen into pressing for concessions, decided to publish in the press that it had conceded no advance to the hauliers because it did not feel justified "in varying the terms of the award in any particular."<sup>1</sup>

A further example of this narrow conception of the function of the joint committee was the expression of the owners' view in February, 1877, that it was not expedient for it to hear disputes as they arose at the various collieries "because it would be constituting the Joint Committee into a perpetual Board of Arbitration, and that was not intended when they were appointed."<sup>2</sup> This policy of dealing solely with disputes which arose out of alleged violations of the sliding scale agreement of 1875 and not with all disputes usually meant the rejection of appeals for intervention brought forward by the men. When the Glamorgan Coal Company, for example, on the grounds that the seam had become less faulty, was reducing the wage-rates paid at Llwynypia (a pit opened since 1869) to equate them to those paid in neighbouring collieries the committee declined to intervene when the men complained.<sup>3</sup> The policy was, however, not so one-sided as would appear at first sight because similar complaints from the owners rarely reached the committee owing to the policy of the Association of discouraging its members from bringing them forward. The Committee, thus, poured only a limited amount of oil on the troubled waters of the industry and many disputes were left to be settled, or to rankle, at colliery level.

The committee was an experiment, but one less ambitious than it might have been and than the men expected it to be. There were precedents for joint bodies with a wider scope. The joint committee established on the West Yorkshire coalfield in 1873, modelled on the committee already in operation in Northumberland and Durham, could deal with all questions relating to wages, the mode of working, and any other subject which might arise between owners and men at any colliery. More general questions could also be referred to this committee and, if these could be settled in no other way,

<sup>1</sup>*Minute Book of Joint Committee*, 27th May, 1876.

<sup>2</sup>*Ibid.*, 14th Feb., 1877.

<sup>3</sup>*Ibid.*, 14th Feb., 1877.

an umpire with the power of final decision could be appointed.<sup>1</sup> The committee in South Wales was certainly not hampered from developing along these lines by any weakness of personnel. On the owners' side men like David Davis of Ferndale, William Menelaus of Dowlais, William Thomas Lewis, agent to the Marquis of Bute, and Archibald Hood of the Glamorgan Coal Company were all authoritative figures. On the men's side there were Thomas Halliday, of national importance as a union leader, Henry Mitchard, a leading figure in Monmouthshire, John Prosser and David Morgan of Aberdare, and William Abraham ("Mabon"), already winning fame through his silver-tongued oratory. But in South Wales the employers were determined that the joint committee should have strictly limited powers and the men were compelled, despite their reluctance, to accept this view.

#### IV

Even though the employers at first had wished to keep the sliding scale agreement inviolate the pressure of events soon impelled them to seek modifications of it. In conceding a minimum wage-rate the owners had realised that at times they must be prepared to work at a loss, but it was believed that the workmen's concession of maximum rates would enable any such loss to be recouped. No-one had anticipated, however, that the depression after 1876 would be as deep or enduring as it proved to be. From the end of 1875 until the beginning of 1880 the selling price of coal moved steadily downwards, the average price of steam coal, for example, falling during this period from about 10s. 8d. to about 8s. 3d. a ton. The demand for coal by the iron trade was dwindling with the fall in the production of pig iron in South Wales from nearly 715,000 tons in 1874 to about 670,000 tons in 1879. The iron industry of the region was hard hit by the collapse of its mainstay, the export trade in rails to America. In 1877, for example, the works of the Aberdare valley, the glow of their furnaces quenched, were described as "gaunt and silent spectres"<sup>2</sup> while elsewhere, as at Cyfarthfa, other ironworks were idle with little prospect of

<sup>1</sup>F. Machin, *The Yorkshire Miners*, vol. I (Barnsley, 1958), pp. 177-8.

<sup>2</sup>*Mining Journal*, 27th Jan., 1877.

restarting. The stagnation in demand was general. The slowly growing export trade in Welsh coal formed a solitary exception, but even here the acuteness of competition precluded any hope of an immediate revival of prices; not only were the iron companies tempted to send more of their coal to the market but also the extensive collieries initiated during the boom years of the early 'seventies were now becoming productive.

Debarred by its agreement from making a direct attack on minimum wage-rates, yet acutely conscious that its membership accounted for only half of the production of the coalfield, the Owners' Association sought desperately for other means of reducing costs. In 1876 it revived a plan to establish a set of contract rules which would, for example, compel a greater regularity of attendance at work and an acceptance of greater flexibility in working methods, but this attempt foundered, as it had in 1874, on the opposition of the men.<sup>1</sup> The owners also attempted to secure some relief by lengthening the working week. They informed the men of their intention to return to the hours, for adults, which had been general before the Act of 1872—namely, 69 hours a week instead of the current 54.<sup>2</sup> The men's representatives claimed that the sliding scale had settled hours as well as wages through the allowance for the costs of the 1872 Act conceded to the owners in fixing the equivalent selling price under the scale. Some of the largest owners disregarded this protest; indeed, in August, 1877, it could be asserted that "the system of lengthened hours had . . . really become general in the Aberdare valley."<sup>3</sup> Nevertheless an increase in hours could not be a satisfactory remedy in an industry suffering from over-capacity, with many collieries already unable to secure enough orders to work their pits full time.

A more serious situation arose when some of the members of the Association started to negotiate reductions of wages with their own workmen outside the scale, a process which had already made some headway among non-member firms. The

<sup>1</sup>*Minute Book of Joint Committee*, 24th Oct., 1876.

<sup>2</sup>The owners were legally entitled to take this action as the Act of 1872 restricted the hours only of boys under 16.

<sup>3</sup>*Minute Book of Joint Committee*, 28th Aug., 1877.

issue was brought to a head by the announcement, in May, 1877, that the colliers employed by the Plymouth and Aberdare Company had accepted a reduction of ten per cent. below the minimum wage-rates provided by the scale.<sup>1</sup> This direct attack on the scale was condemned by most of the Associated owners who were still anxious to honour their agreement with the men. The reaction of the colliers was even more antagonistic. Already uneasy owing to the attempts by some owners to increase the number of hours, but ultimately willing to yield on this provided the advantage of the minimum wage-rates under the scale was retained, they could never countenance actual wage reductions at individual collieries if the scale was to keep any meaning at all. In the event, the reduction proposed by the Plymouth Company was not effected as its colliers, under pressure from their fellow-workmen, withdrew their acceptance of it.<sup>2</sup>

The issues raised by this incident, however, could not be ignored. The loyalty of the members to the Association, not free as competitors were to reduce wages, was under a strain which could have been relieved only by a marked change in the trend of prices—and of this there was no sign. Thus, in December, 1877, the Associated owners felt compelled to inform the men's representatives on the joint committee that the current state of trade made the continuance of the agreed minimum wage-rates impracticable and that, if no concession were granted, notice would have to be given to end the scale. The men, well aware that they had been sheltered from a general onslaught on wages only by the existence of the scale, agreed to accept a reduction of five per cent. below the minimum. The formal integrity of the scale was maintained by the promise of the owners that, as soon as the recovery of trade brought prices above the minimum standard, this "loan" would be returned by the grant of a five per cent. increase additional to the scale.<sup>3</sup>

Any relief that the owners had gained was negatived in the following year by a further deepening of the depression which

<sup>1</sup>*Western Mail*, 26th May, 1877.

<sup>2</sup>*Ibid.*, 30th July, 1877.

<sup>3</sup>*Minute Book of Joint Committee*, 28th Dec., 1877.



reimposed all the old strains. At the end of 1878 the owners put forward new demands for the recognition generally of a sixty-hour working week and for the removal of the minimum from the scale. To the colliers these demands seemed unreasonable. The reduction in wage-rates they had already accepted was by no means the full measure of their distress since, with irregular working causing almost universal under-employment, earnings had dropped much more drastically. At a delegate meeting, held at Merthyr on 13th December, 1878, the owners' request was rejected;<sup>1</sup> the owners thereupon gave the necessary six months' notice to end the scale.

The intention was not to abandon the idea of a scale but merely to secure the freedom to affect a reduction in wage-rates. The principle of a scale was not now objectionable to the owners—far from it—and they had indicated that they would be “most happy to discuss a new arrangement”<sup>2</sup> which would be more in keeping with trade conditions. During the negotiations in the first half of 1879 the owners' demands solidified into a request for a ten per cent. reduction in wage-rates, this being considered essential to meet the competition from the North of England where hours had already been increased and wages reduced. Moreover the owners of the non-associated collieries in South Wales were imposing reductions in the wage-rates of their colliers and members were beginning to leave the Association to gain freedom to behave similarly. Some of the men's leaders were aware of the futility of resistance. Halliday, for example, advised the colliers to “agree with thine adversary quickly, while thou art in the way with him,”<sup>3</sup> but this scriptural advice was unheeded and no agreement had been reached by the time the owners' notice expired. During the first week in July there was a complete stoppage at the 170 pits belonging to the 59 members of the Association, but thereafter the colliers gradually trickled back on the owners' terms. The first scale had ended, as it started, in conflict.

<sup>1</sup>*Western Mail*, 14th Dec., 1878.

<sup>2</sup>*Minute Book of Joint Committee*, 14th Dec., 1878.

<sup>3</sup>*Colliery Guardian*, 6th June, 1879.

## V

The successful negotiations for a revised scale early in 1880 afforded convincing proof that, despite the stresses of its existence, the first sliding scale had revealed advantages which commended it to both sides. Any agreement which could not be revoked at short notice and which evinced some power to endure was welcome to the owners because buyers were more likely to place their orders in South Wales if they felt that the honouring of long contracts would not be interrupted by industrial strife. The men also gained from the regularity of earnings which accompanied this regularity of trade. Still more were they aware that for much of its course the 1875 scale had protected them from attacks on their wage level during a period of unusually depressed trade. They were patently weak and disunited; the scale not only removed wage-rates from the arbitrary control of the employers but also promised automatic improvements in them when trade should revive.

Experience soon made both sides realise, however, that the scale had unfavourable implications which had largely been overlooked in 1875. Many owners strongly resented the growing interest, inevitable when wages were tied to prices, which the men took in their commercial policies. They also resented the greater difficulty they experienced in introducing new working methods since the men could often claim that these changes, by affecting the basis of the scale, constituted a departure from it. These resentments ultimately made the owners, if not eager to abandon the scale, less willing to strive for its retention. The grounds for the men's discontent were more fundamental. They were—and were to remain—disappointed in their hope that the scale would be supplemented by a general "Board of Arbitration." They were frustrated in their hope that they could secure the co-operation of employers in the restriction of output and, in the absence of this, suspected that by allowing prices to govern wages they were encouraging their employers to indulge in competitive selling which served merely to depress their own standard of life. The men, too, suspected that the collapse of unionism could not be wholly ascribed to the

depression of trade, since the impulse towards unionism was sapped by the apparent automatism of the scale.

Nevertheless the scale could be credited with having averted a repetition of the bitter industrial conflict of the early 'seventies which had involved losses and sacrifices which long remained fresh in the memories of the leaders of both sides. For some years, then, the belief in the general principles of the scale predominated and efforts were concentrated simply on amending the details of its construction. It was clearly realised by 1879 that a scale which seemed eminently satisfactory under one set of trade conditions could, as these conditions altered, contain implications which were intolerable. When this happened the scale could be maintained only if there was a readiness on both sides to negotiate a new basis for it in a conciliatory spirit. For many years this readiness existed and the flexible attitude both owners and men were willing to adopt helps to explain the unusually long survival of the scale in South Wales.

To the far-sighted the seeds of the downfall of the scale could have been apparent in 1880 because, by the new agreement of that year, the employers succeeded in abolishing the provision fixing any minimum for wage-rates. This loss the men lamented as the abandonment "of that principle which gives us the right to determine the lowest wage-rate we shall take for our labour."<sup>1</sup> Slowly the men became mistrustful of the assumption, implicit in the scale, of the over-riding identity of interests of capital and labour and they put as their foremost aim the securing of a wage which, as a prior charge on the industry regardless of the selling price of coal, would provide them with a reasonable minimum standard of living. They could then feel that, even if the stability of trade and the industrial peace the scale promoted were blessings, they were blessings which could be bought too dearly.

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<sup>1</sup>*Minute Book of Joint Committee, 24th May, 1880.*

# Wage Policy in Holland

## I.

On 26th May, 1959, the first post-war Dutch Government without Socialist Ministers submitted its programme to Parliament. The programme included a two-fold change in the system of wage determination that had been operated under previous Governments. First, the rules of wage adjustment were to be amended so as to permit of larger differences between firms and industries than had been customary. Second, responsibility for the formulation and application of the rules was to be shifted to some extent from the Ministry of Social Affairs and the Board of State Conciliators to organised industry.

At the time of writing (December, 1959) no concrete proposals had as yet been submitted in respect of the latter point. Some new rules of wage adjustment had, however, been designed and applied in a number of cases. It is too early for any conclusion as to the extent to which these innovations will constitute a radical departure from earlier practice. The main purpose of this paper is indeed to suggest an interpretation and evaluation of the Netherlands experiment in national wage policy as this worked before these recent changes. To that extent it may be regarded as a post mortem. But, if some of the conclusions drawn from the earlier experience are correct, the future development of Dutch wage policy may, in the end, not differ very substantially from the earlier pattern.

## II.

In post-war Holland wages have always been subject to Government control. Employers and trade unions may bargain collectively but any agreements reached must be validated by a body appointed by the Government: the Board of State Conciliators. When for some reason no collective agreement can be negotiated, the Board issues a binding regulation of conditions of employment for the sector concerned.<sup>1</sup>

<sup>1</sup>In 1940, 351,000 workers were covered by 1,544 collective agreements, mostly at the level of the firm. As a result of increased industry-wide bargaining, at the end of 1956 about 1.75 million workers were covered by 590 collective contracts.



In either case the Board applies a number of "guiding principles" defining permissible minimum hourly rates and maximum average earnings in relation to skill and regional differences in the cost of living. The principles also define permissible overtime and shift premiums, incentive earnings, job evaluation and merit allowances, profit-sharing arrangements, allowances for time workers in plants where others are on piece-work, holiday allowances, etc. Payment of wages above or below regulations or validated agreements is a punishable offence.

With this system four objectives are pursued : first, to avoid wage increases that are excessive from the point of view of the country's economic conditions and prospects ; second, to ensure that wage-earners receive an adequate share in increasing prosperity ; and third, to ensure a suitable structure of wage relationships between various groups of workers (this is known in Holland as "co-ordination"). These three objectives are interrelated. For example, no system of wage control aiming at the first objective would be acceptable to the trade unions unless it also provided for the second aspect. And, as we shall see below, no such system could be operated easily without some measure of "co-ordination." The fourth objective of the system is to reduce industrial conflict and strife to a minimum.

These four objectives also determine the wage policy of the new Government although, as will be explained below, this policy involves a somewhat different approach to the aspect of co-ordination.

For practical purposes the principal objective is that of avoiding excessive wage increases. This does not reflect in the first place a general dislike of a continuing decline in the value of money but rather two basic characteristics of the Dutch economy : an extremely heavy dependence on foreign trade and a dense, rapidly increasing population. In 1957 Dutch exports f.o.b. were larger than those of Australia and New Zealand combined and were also larger than those of Japan. Imports and exports each correspond to about half the value of Gross National Product. As it is essential for the Dutch to keep their exports competitive, export prices should rise not more and preferably less than those of other countries. In the

Netherlands the density of population exceeds that of Japan and of England/Wales by 40 and 15 per cent. respectively. The annual rate of increase is 1.2 per cent. which is the same as in Japan and three times that in the United Kingdom. In these conditions the maintenance of full employment depends on heavy industrial investment. The need for, on the one hand, competitive exports and, on the other hand, heavy investment, explains the emphasis on wage restraint and the willingness to accept for this purpose even a substantial measure of Government control over wages. The small size of the country facilitates the administration and enforcement of such control.

### III.

The Netherlands system of permanent, direct, Government control is a rather extreme approach, probably acceptable to the Dutch themselves mainly because it was devised in the extremely difficult conditions of the later war and early post-war years, and despite criticisms has proved rather a convenient means of meeting the peculiar economic problems and social ambitions of the country. The main interest of this experiment probably does not lie, however, in its legal and institutional aspects but in the "guiding principles" according to which wages are adjusted in practice.

For the purposes of this discussion these rules, and changes therein, may be divided into three groups :

- (a) those concerning general wage adjustments in the economy as a whole ;
- (b) those governing wage changes in individual industries ;
- (c) those determining wage conditions in individual firms.

*Decisions affecting the whole economy* are taken by the Government after consultations with the Foundation of Labour (a body representing employers and the three principal trade union federations, notably excluding the Communist groups) and with the Social and Economic Council (which in addition to employers' and trade union representatives, also includes independent members appointed by the Government). Such decisions are based on an appraisal of the country's general economic conditions. In this official appraisal an important part is played by the views of the Central Planning Bureau

which, though a Government agency, is not part of any individual Ministry and enjoys a reputation of outstanding competence and impartiality.

Decisions affecting the whole economy are taken *ad hoc*. There is no annual review of wages. A strictly periodic examination of the general wages situation is, in fact, considered undesirable on the ground that it might create an expectation of regular wage increases.<sup>1</sup>

General wage adjustments have been made in two groups of cases : past or deliberately planned increases in the cost of living (the latter, for example, as a result of reduced subsidies or increased controlled rents), and evidence of a substantial increase in general prosperity. On some occasions (in 1951 and 1957) the situation called for a reduction in real wages ; such reduction was brought about by permitting the cost of living to rise without fully compensating money wage increases.

As a general rule wage rounds justified by increases in the cost of living have been *prescribed* by the Government ; an exception to this rule occurred in 1949, when the adjustment was *permissive*. Generally, wage increases justified by increasing prosperity have only been permissive ; they occurred, for example, in 1954 and 1956. As regards the former group of adjustments, it may further be noted that the introduction of compulsory social insurance schemes involving workers' contributions have been treated as causes of higher cost of living and, accordingly, accompanied by compensating wage increases (the Unemployment Act of 1952 and the Old-Age Insurance Act of 1957).

The 1954 prosperity wage round permitted an increase in basic rates of up to 6 per cent. In 1956 the same maximum applied though with this restriction, that any increases larger than 3 per cent. should not be carried forward to prices.

*Decisions concerning wage adjustments in individual industries.* As the result of the permissive wage rounds, wages in some industries or firms could, on various occasions, rise faster than those in others. More generally, individual industries

<sup>1</sup>S.E.R. (the abbreviation for the Dutch name of the Social and Economic Council) : *Advies inzake het Vraagstuk van de Toekomstige Loonpolitiek*, The Hague, September, 1955, p. 19.

may be claimed to be lagging behind others in some sense, or other grounds may be advanced for a contention that, although there may be no scope for a general wage round, a particular industry should have an increase. In the past such claims have sometimes been settled on the basis of job evaluation (provided that the industry's capacity to pay permitted of an increase in wages). For example, when late in 1956 the Government launched a vigorous anti-inflationary programme, it decided that no wage increases could be permitted except in the case of "manifest anomalies" in terms of comparative wages and job requirements. On that basis substantial wage increases were later approved for agricultural, railway and construction workers.

As we shall see below, a good deal of controversy has centred on the question whether some criteria other than job evaluation should not also be recognised as a ground for raising wages in individual industries. The main innovation of 1959 is indeed the introduction of one such additional criterion. At the same time it may be noted here that the application of permissive wage rounds in practice also involved one further standard, namely the ability to reach agreement on a wage increase up to the permitted maximum. In practice this meant a measure of capacity to pay.

It has been said that, before 1956, one of the cardinal principles and weaknesses of the Dutch wage policy consisted in the maintenance of a wage structure based on meticulous application of job evaluation without any allowance being made for ability to pay.<sup>1</sup> We shall return below to the question whether job evaluation might not, in fact, be a suitable criterion for fixing inter-industry wage relationships. But as may be seen from the above, this method has been used in the Netherlands only as one means of testing wage claims, not as an exclusive basis for determining the whole national wage structure. (The latter was, however, for some considerable time based on a few nation wide rates for skilled, semi-skilled and

<sup>1</sup>B. C. Roberts : *National Wages Policy in War and Peace*, London, 1958, p. 127, and *The Times Review of Industry*, May, 1958, p. 37 ; United Nations : *World Economic Survey 1957* (mimeographed), Chapter I, pp. 87 and 88.



unskilled workers, allowance being made for regional differences in cost of living).<sup>1</sup>

*Rules for wage-fixing at the plant or firm level* have been gradually developed and refined in a manner such as to provide a carefully-defined area in which bargainers may manoeuvre without, however, upsetting the basic objective of avoiding excessive wage increases. This development has been the work largely of the Conciliators and the Foundation of Labour. The Wage Commission of the Foundation screens draft collective agreements on their way to the Conciliators and in difficult cases is consulted by the Board (in important cases the Board will consult with the main committee of the Foundation). Between them, the Conciliators and the Wage Commission have thus managed to make the system flexible without letting it get out of hand.

For example, parties bound by an agreement stipulating particular hourly rates may, but need not, apply an incentive system. If that system is based on work measurement and satisfies the Conciliators, average earnings in the firm concerned may rise up to one-third above the basic rates; when a simple piece rate system is used without work study, earnings may be 15 per cent. higher than hourly rates. Similarly, when a firm applies a sound system of merit rating, average and individual rates may exceed the basic rates by, generally, 6 and 10 per cent. respectively. Again, if job evaluation is used particular groups of workers may be paid above the general rates for skilled, semi-skilled and unskilled men. Parties may also, within specified limits, agree on profit-sharing schemes, pension plans and other fringe benefits.

The limits within which these and other devices may be applied are part of the "guiding principles" which in this respect are, however, applied rather flexibly and informally. In special cases higher percentage limits may be approved or other particular allowances may be applied. It will be clear that, in principle at least, these rules permit of substantial

<sup>1</sup>To some extent job evaluation is also used for fixing salaries of lower grade British civil servants by the Civil Service Pay Research Unit (cf. *The Times* of 10th November, 1959). In *The Times* of 18th August, 1958, it was suggested that this principle might be applied on a wider scale so as to settle wage claims, for example, of railway workers.

differentiation in wages as between individual firms, according to their capacity to pay or otherwise, though the extent and precise nature of this differentiation are not unlimited.

#### IV.

Ever since, around 1952, the serious economic difficulties of the war and its aftermath had been overcome, the Dutch have been wondering whether (a) the system as outlined above, and especially the direct Government supervision, was still really necessary, and (b) the rules of wage adjustment could not be made even more flexible than they had already gradually become. These questions were the subject of several reports and studies including one by the Social and Economic Council (S.E.R.) in 1953, another by the Foundation of Labour in 1954 and a further one by S.E.R. in September, 1955. In April, 1959, S.E.R. included some further comments on these matters in a broader memorandum in which it advised the Government on general problems of economic and social policy in 1959 and 1960. As mentioned at the beginning of this article, the new Government's policy statement also dealt with these two problems.

As regards the institutional aspects, especially the Christian employers' and trade union organisations have for a long time advocated a substantial reduction in the extent of Government control. This might be achieved, for example, by having the "guiding principles" established by S.E.R. (on which the Government is not represented though it appoints the independent members) instead of by the Conciliators and the Foundation. The Government might then still occasionally participate in the formulation of the principles to safeguard the general interest. The application of the rules in approving collective agreements and making binding regulations would, however, be left entirely to a standing committee of S.E.R. These were, in fact, the proposals recommended by a majority of S.E.R. in its 1955 report.<sup>1</sup>

The previous Government had already agreed, rather reluctantly and "in principle" only, to go some way in this direction and had been working on a draft Wages Bill that

<sup>1</sup>*Op. cit.*

would concede some of the demands for reduced Government interference. What little enthusiasm it may have had in giving effect to these demands was probably reduced further after the Central Employers' Federation withdrew its original support for the idea. The reason for the Federation's scepticism is an interesting one : the employers are reluctant to see an impartial Government agency, acting in close consultation with organised industry and enjoying its confidence, replaced by a body mainly representative of group interests.

Under the present arrangements collective agreements are approved or rejected by the Conciliators. The negotiators and their representatives in the Foundation and its Wage Commission can defend the claims and interests of their affiliates, but the ultimate responsibility for applying the rules rests with an impartial Government agency. The Employers' Federation possibly feels that if this responsibility were shifted to S.E.R. the federations represented on that body would face this difficulty, that their conscience may tell them to reject a proposed collective agreement while the need to keep affiliates happy may require such a proposal to be approved. The Conciliators, it appears, perform a useful scapegoat function that should not lightly be discarded. Perhaps significantly, the Central Employers' Federation recently published an affectionate article about the Conciliators under the title "The Board of Conciliators and its Ungratifying Task."<sup>1</sup>

As we have seen above, the new Government also intends to shift some of its responsibilities in matters of wage policy to "organised industry" (presumably meaning S.E.R.). So far no concrete proposals to that effect have been submitted. In November, 1959, the President of the Employers' Federation reiterated his opposition to such changes and advised the Government to postpone them for a while, the other problems created by the new wage policy being difficult enough for the time being.

Indeed, as long as it is agreed that there should be some official restraint on wages at all it is not very clear what exactly is to be gained by such a change. It has been argued that by replacing the Conciliators by S.E.R. one would lay primary

<sup>1</sup>*De Onderneming*, 10th October, 1959.

responsibility for wage fixing on those directly affected : industry itself. It appears doubtful whether all the organisations represented on S.E.R. would be very happy to have this responsibility. But in any case, to the individual employer and worker, S.E.R. is probably as remote an official body as the Board of Conciliators.<sup>1</sup> The real reason behind the proposals for institutional change has always been a desire, among the groups concerned, to give individual industries and firms more freedom in adjusting their own wages. This objective could be achieved by dropping the national wage policy altogether, but few people want that. That being so, however, the wish to have more freedom at the level of the industry or plant does not seem to call for a formal transfer of authority from one central body to another, but rather for a change in the guiding principles.

#### V.

The main vehicle of the strong upward movement in wages in post-war Holland has been the succession of "wage rounds." Several of these were compulsory overall wage increases ; some of them were permissive. On the occasion of compulsory wage rounds the Conciliators were usually authorised to give dispensation to industries which could demonstrate their inability to support the wage increase, but little use was made of this possibility. The permissive wage rounds, particularly those of 1954 and 1956, involved much wider possibilities of differential wage adjustments, but in practice the very large majority of wages rose by the permitted maximum of 6 per cent. and, as was noted above, some of the groups who did not reach this limit in 1956 received increases in 1957.

Whereas there have been possibilities, at least in theory, for individual industries not to share in a general wage increase, there have been few opportunities for isolated wage increases ahead of the rest of the economy beyond those offered by the rules for wage adjustment at the plant level mentioned in section III. The groups that have advocated a reduction in Government control have also been unhappy with the limitation on the freedom of individual industries and firms to agree on

<sup>1</sup>C. de Galan : *De Invloed van de Vakvereniging op Loonshoogte en Werkgelegenheid*, Leiden, 1958, p. 155.



isolated wage increases. Arguments in favour of greater freedom in this respect have included, for example, the ideological point that wages should be fixed by "those directly affected"; the belief that if wages could be adjusted to profits in individual firms or industries the share of wage-earners in the national income would be higher and would give workers an incentive to better performance; and the view that decentralised wage adjustments are less likely than wage rounds to result in price increases.<sup>1</sup>

Carried to their logical extremes, these arguments would involve the abandonment of the national wage policy. There seem to be two reasons, however, why this conclusion has not been drawn. First, the Dutch believe in the possibility of "cost push": they think that in the absence of some restraint wage increases might become excessive. Secondly, there is a widespread concern over the question of "co-ordination": it is believed that relative wage movements cannot be left entirely to the chances of sectional collective bargaining and that action should be taken to ensure that they are "proper" in some sense.

As long as excessive wage increases are to be avoided under a system of Government control, any additional freedom for bargainers to negotiate sectional wage increases should somehow be circumscribed and limited. In this train of thought S.E.R., in its 1955 report, proposed that sectional wage increases might be permitted provided that they reflected inter-industrial differences in the employment situation, in productivity and in profits. Very little was said about the way in which this proposal might be implemented except that the resulting wage differences should not be so large as to become incompatible "with the concept of co-ordination." While the previous Government had, again reluctantly, agreed in principle to the proposals of S.E.R., the only tangible result was the permissive wage round of 1956 which produced hardly any differentiation and was not based on the three criteria proposed by S.E.R. The new Government has issued a directive to the Conciliators

<sup>1</sup>The argument that larger wage differences would bring about a better allocation of the labour force has rarely been invoked in the Netherlands.

that was supposed to provide the "guiding principle" for permitting wage adjustments in accordance with one of these criteria : productivity. We shall return below to this ruling and to the problems it raised.

It may, however, be of interest first to examine a little more closely the position of wage differentials under the system as it had worked previously. We have already noted that in those days the wage structure was not simply determined by job evaluation. At the same time it must be admitted that widely diverging wage movements between firms and industries were definitely discouraged. Furthermore, when in 1954 and 1956 differential wage increases were permitted, the actual result was a pretty uniform increase in collective agreement rates of 6 per cent.

Although this seemed to take by surprise those who had advocated a more differentiated wage policy, it is, of course, an experience not unknown in countries without any national wage policy. For example, speaking of British experience, H. A. Turner found that "The major tendency of 'industry' wage rates since 1938 may be summarised by a generalisation. They conform to a Rule of Equal Increases."<sup>1</sup> The explanation of such a tendency is also familiar : "trade unions have to compete for success," or groups of employers may wish or be obliged to follow "wage leaders" making "key settlements."<sup>2</sup>

It is possible that the practice of compulsory wage rounds has made people in the Netherland even more alert to the idea of equal wage increases than in other countries. But however this may be, "wage rounds" are by no means exclusive to the Dutch system but are found in other countries as well, whether they have formally co-ordinated wage negotiations or not. The Dutch emphasis on "co-ordination" is best seen in this light. The term itself is ill-defined but indicates a common

<sup>1</sup>Wages : Industry Rates, Work Place Rates and the Wage Drift," *The Manchester School of Economic and Social Studies*, May, 1956, pp. 96 ff.

<sup>2</sup>See, for example, A. Flanders : "Can Britain Have a Wage Policy ? " *Scottish Journal of Political Economy*, June, 1958, p. 117, and D. J. Robertson : "The Inadequacy of Current Wage Policies in Britain," *ibid.*, p. 105.

belief in the need for some restriction on wage differentials or a hedging against further surprises of differentiated wage policy without, however, committing anybody to a very precise position on this point. To the Netherlands Federation of Trade Unions it probably means in the first place an ideal of equal pay for equal work, and wage differences broadly in accordance with differences in job requirements as these may be assessed, for example, through job evaluation. To the other trade union federations "co-ordination" may rather mean that large differences in wage advances are apt to create tensions and to weaken solidarity within the trade union movement. For the employers and the Government the main importance of co-ordination may well be the belief that it is in practice impossible to have widely differing wage advances, so that in judging the merits of an increase in one industry, even if this can be justified by a large increase in productivity, one should also take account of its probable repercussions on wages in other sectors.

In addition to these considerations there are, of course, considerable economic advantages in avoiding widely differing wage movements. One is that rather narrow wage differences as between industries facilitate a proper allocation of the labour force, because low productivity industries are not allowed to retain an unduly large labour force by paying low wages.<sup>1</sup> Secondly, if a measure of price stability is to be achieved, differential movements in productivity as between industries should be accompanied by differential price movements, commodities made under conditions of fast-increasing productivity falling in price and those for which productivity increases little rising in price to reflect rising opportunity cost. Such differential price movements are only possible if relative wage movements are much smaller than relative changes in productivity. Ideally (from this point of view) all wage increases might for example equal the average rise in productivity in the economy as a whole.

<sup>1</sup>Some people believe that the opposite is true on the ground that when wages differ widely workers will leave the lower paid occupations and move to more highly paid jobs. Even if there were more evidence to support this assumption than the author knows of, this mechanism would seem to be slower than the one mentioned in the text.

## VI.

Co-ordination in the Netherlands has never meant that the whole wage structure was determined by job evaluation. Nor have the wage rounds ever involved absolutely equal increases in basic rates for all workers. It would, however seem, that a system adhering rather closely to these principles would have some important advantages. Some of these have just been mentioned. But in addition, such a system would simplify considerably the practical implementation of wage control. Two aspects of this matter may be mentioned here.

(a) General uniform increases in rates leave little scope for leapfrogging and undesirable competitive wage adjustments generally. For this reason employers facing effective trade unions often prefer industry-wide bargaining to negotiations at the firm or workshop level. When Lord Beveridge first raised the question of wage policy as a problem of full employment in a free society, he saw the main danger to price stability in unco-ordinated "sectional" bargaining. In recent years the opposite has been asserted: the chances of avoiding excessive wage increases would be better if the locus of wage negotiation were shifted to the workplace.<sup>1</sup> In Holland, too, it has been submitted that a less centralised system of wage adjustments would be less likely to cause or propagate inflation.

Dutch experience does not seem to support the contention. In 1956 it was hoped that industry would avail itself of the opportunity to make settlements in accordance with differing conditions in individual industries. Some "strong" industries would negotiate the largest permitted increase (6 per cent.); others would settle on less. It did not happen: most wages rose by 6 per cent. and as a result the total wage increase was larger than the average 4 per cent. that had been expected by the advocates of differentiation. It is now argued that there was nothing wrong with the principle of differentiation but that 1956 was the wrong year to try it because unemployment was so low.<sup>2</sup> And some who do not oppose the new Government's policy feel, nevertheless, that 1959 is for the same reason not an auspicious year for differentiation either.

<sup>1</sup>For example, B. C. Roberts: *National Wage Policy*, p. 173; D. J. Robertson: *op. cit.*, pp. 108 ff.

<sup>2</sup>For example, *De Onderneming*, 25th April, 1959, p. 314.



But a major purpose of the wage policy is to reconcile a high level of employment with the need to avoid excessive wage increases. If differentiation can be applied only in times of slack in the labour market it can hardly be a very interesting feature of a national wage policy.

The 1956 experience has further been explained with the argument that the Government should not have mentioned 6 per cent. as a maximum. In doing so it is, in retrospect, supposed to have set a target for sectional bargains. In accordance with this view the new Government scrupulously avoided mentioning any figure, maximum or otherwise, that in its view would be a proper rate of increase under the new rules. It soon turned out that the increase in basic rates negotiated in the metal trades had much the same effect. When the Government was visibly alarmed and tried to prevent a general wage round of this size, the new wage policy aroused considerable discontent among the whole trade union movement. And the President of the Central Employers' Federation, though expressing sympathy for "differentiation," warned that co-ordination should receive more emphasis than the Government was giving to it.<sup>1</sup>

(b) It was submitted above that equal pay for similar work and general uniform wage advances can be defended on economic grounds. As the application of a particular concept of equity, such a system is also defensible on grounds of social justice. To the extent that it is difficult to persuade workers that they should not claim equal pay or equal wage increases, such a system has also tactical advantages. Finally, the "guiding principles" of such a system are very simple—this undoubtedly is a further important advantage.

The latter point may be clearer if the problems are considered that would arise from the adoption of such criteria for sectional wage increases as were proposed by S.E.R.: the employment situation, productivity, and profits. As long as some effective wage restraint through Government control is to be maintained at all, the conditions in which and the extent to which these criteria are to warrant sectional wage adjustments must be defined clearly.

<sup>1</sup>*De Onderneming*, 21st November, 1959, p. 909.

Suppose one wished to apply the employment criterion on the theory that the payment of higher wages would help an industry in attracting workers from other sectors. A practical rule of wage adjustment could then be that if the ratio between unfilled vacancies and qualified applicants in some industry exceeded that for the economy as a whole by  $x$  points, wages in that industry could (or should?) rise by  $y$  per cent.<sup>1</sup> Modern methods of job analysis might enable "qualified applicants" to be defined clearly. Perhaps allowances could be made for the probability that more or less "unfilled vacancies" and "qualified applicants" exist than are registered (for example employers hoard labour in different degrees in different industries; married women may be qualified and willing to accept a job but may not bother to register as unemployed, etc.). Nor is there perhaps a serious danger that trade unions would put pressure on employers to hoard labour in order to avoid the appearance of an unfavourable vacancies/applications ratio, or that employers would hesitate to register vacancies for fear that this might compel them to raise wages. There would remain a difficult problem of determining  $x$  and  $y$ ; it is unlikely that these qualities could be kept constant, for example, in periods of high and low general unemployment. There would also be the problem that a labour shortage may be purely local or may exist for a particular class of workers only, and therefore would not justify an overall wage increase in the industry concerned.

Indeed, the new Government did not include the employment situation among the criteria according to which sectional wage increases might be awarded, but it did try its hand at "productivity."

<sup>1</sup>It might be objected that this is demanding too much precision. Could it not simply be accepted that if some industry clearly experiences a labour shortage it would qualify for a wage increase, the size of which would be determined on an *ad hoc* basis? Perhaps it could. Perhaps any proposal for a sectional wage increase, whatever the grounds advanced for it, could be judged on its merits. This would, however, mean that wage adjustments became entirely a matter at the discretion of the agency validating collective agreements. This would probably be regarded as intolerable or be found unworkable. Alternatively, official wage control might, in fact, become very weak and be no longer effective.

## VII.

On 31st July, 1959, the Government issued a directive to the Board of Conciliators permitting sectional wage increases that would not lead to higher domestic prices either immediately or in the long run. According to the directive such wage increases would therefore be justified if they were matched by rising productivity. Proposals for wage increases in collective agreements could be approved if they were based on an anticipated increase in productivity during a future period not exceeding the period for which the collective agreement was concluded. Past movements in output per worker could be admitted as evidence to substantiate such anticipated increases in productivity.

In its statement of 26th May, the Government had recognised that the state of the balance of payments indicated that there was "room" for an increase in national expenditure. Accordingly, improvement in real wages did not need to be limited to future increases in productivity: there was some scope for raising wages on the basis of past performance. The directive therefore also included an indication of the date as from which past improvements in productivity were allowed to be reflected in wage increases. Furthermore, for 1960 a general wage compensation was foreseen on account of a new increase in controlled rents and of a reduction in the subsidy on milk. Parties negotiating a collective agreement involving wage increases based on rising productivity should deduct the cost of this compensation from the "room" for higher basic wage rates.

The Government's directive substantially qualified the rule of wage increases according to rises in productivity. "The board may deviate from the above rules if at any time the need for co-ordination makes it desirable to do so." Furthermore, "if proposals for improved wages or other conditions of employment exceed the average national growth of productivity to an extent which, in the view of the Board, might cause undesirable effects (for example, due to conditions in the labour market), the Board will invite parties to revise their proposals." And if parties do not solve the

problem themselves, the Board will, if necessary, impose a more suitable settlement.

The reference to "conditions in the labour market" is to be read in the light of another provision, reflecting uneasy afterthoughts inspired by the 1956 experience: "In a period of full or over-full employment, differentiation should be applied more cautiously than when more balanced conditions prevail. The same applies in times of serious unemployment. Thus, the degree in which it is necessary to take account of the need for co-ordination depends in part on the level of employment." So apparently this need is less urgent in "balanced conditions" defined as neither full nor over-full employment, nor serious unemployment; presumably it means "non-serious unemployment"! Finally, the Government asked S.E.R. to examine the possible need for a statutory minimum wage as a further aid in co-ordination.

In August a collective agreement was negotiated for the metal trades: 5 per cent. higher basic wage rates plus, in due course, the rent and milk compensation, and some further improvements including a gradual reduction in working hours. The Foundation of Labour found the proposals in conformity with the directive and advised favourably. The Government, bewildered, sought to negotiate with the Foundation an amendment to its directive which would enable the collective agreement to be rejected. The Foundation refused. Then the Conciliators were put under pressure to amend the agreement. They also refused and the workers in a large enterprise struck work. The agreement was approved.

On 5th October the Government announced that some "problems of interpretation" had arisen from its directive. These problems had been discussed with the Foundation but, no full agreement having been reached, the Government issued a "clarification." This was really an *amendment* limiting the possibilities of wage increases, *inter alia*, by restricting the period over which past increases in productivity could be reflected in higher wages. On 16th October the Foundation informed the Government that it thought some parts of the "clarification" were unduly restrictive and could not always be



applied. The Netherlands Federation of Trade Unions sent a separate, much sharper letter to the Government.

Some of the difficulties and dissatisfaction of the first few months after the directive had been issued were problems of transition. The question of determining the period over which productivity improvements could be taken as the basis for wage increases is a case in point. Secondly, the trade union movement as a whole was annoyed at the Government's decision to give priority to higher rents and lower subsidies over higher real wages. This, however, is a question quite distinct from the principle of differentiation. But this principle does raise a few less ephemeral questions.

The main justification for linking sectional wage adjustments to sectional productivity movements is that real wages rise without causing price increases.<sup>1</sup> This cannot be, and in the Netherlands is not, strictly applied throughout the economy : in sectors where productivity rises fast, wages must rise proportionally less, and *vice versa*. In practice, and broadly speaking, the national wage level will have to rise more or less in proportion to the national average growth in productivity, and "co-ordination" will ensure that inter-industrial differences will be limited. It is far from certain that the net result will differ substantially from that under the old system when the wage level also rose in accordance with overall productivity while there was a high degree of "co-ordination."

To the extent that sectional productivity movements will play a part, it is clear that a rise in physical output per man does not necessarily mean an increase in the industry's capacity to pay or, for that matter, that there will be any other logical ground for a proportional wage increase. Revenue will not increase in the same proportion if the volume of sales does not rise enough or if prices are reduced. And cost will not fall in the same proportion as productivity rises, if higher productivity is the result of heavy investment.<sup>2</sup>

<sup>1</sup>The advocates of differentiation also claim that the principle provides an incentive to higher productivity. This is doubtful when wages in a whole firm (unless it is small) are linked to productivity in the firm as a whole. It is probably nonsense when wages in a whole industry are tied to productivity in that industry.

<sup>2</sup>*De Onderneming* of 1st August, 1959 (p. 592) and of 21st November, 1959 (p. 908).

It is not always easy to measure productivity, especially in non-manufacturing activities. But even in cases where the statistical problems are relatively simple, there will usually be scope for differences in interpretation, and it is not at all impossible that the calculations will reflect bargaining strength rather than the scientific accuracy of those negotiating collective agreements on this basis.<sup>1</sup> Parties may first agree on a wage, and then prepare the productivity figures that the Conciliators require before they can approve an agreement. Some curious changes in the "findings" concerning productivity in the printing trades at the time when a new collective agreement was negotiated for that industry in 1959 may illustrate this point.

The most difficult problem, however, is this: what is going to happen to wages in industries where productivity does not rise so easily, such as coalmining, transport and the civil service? On 31st July a Government spokesman stated that these groups should not expect an increase in real wages before 1961.<sup>2</sup> This upset even the Christian Transport Workers' Union. As we have seen, the Government is building into its differentiation system stabilisers in the form of co-ordination and minimum wage fixing. Perhaps 1960 and 1961 will bring some effective differentiation, but what then? Some industries have a permanent tendency towards fast-increasing productivity (such as the metal trades). Others have a permanent tendency towards stable output per man (such as many personal services). One cannot go on raising wages in the former by substantially larger amounts than in the latter. Sooner or later the principle of sectional wage advances on the basis of sectional productivity movements must be restricted even further than it is now; it may well have to be abandoned altogether.

#### VIII.

According to Mr. B. C. Roberts "the essential lesson to be learned from the experience of the Netherlands is not that

<sup>1</sup>This point was first raised by the Netherlands Federation of Trade Unions (A. Kloos in *De Vakbeweging* of 14th April, 1959, p. 115) and later by the President of the Central Employers' Federation (*De Onderneming*, 21st November, 1959, p. 908).

<sup>2</sup>*Het Vrije Volk*, 1st August, 1959.

inflation can be prevented by wage controls.”<sup>1</sup> Few people would indeed expect wage controls to prevent inflation when the basic cause of inflation lies outside the field of wage determination, as in the case of inflationary rearmament programmes or irresponsible financial arrangements for house-building. One of the main criticisms that have been levelled against national wage policy has, however, been that in countries attempting such policies both wages and prices have risen at a rate comparable to or exceeding that of countries who do not apply wage policies. As far as the Netherlands are concerned, this would be a correct factual statement : between 1947 and 1958 wage rates in industry rose by 84 per cent., earnings by 94 per cent., the cost of living (excluding taxes and Old Age Insurance premiums) by 56 per cent.

This is a way of evaluating the Dutch experience. Before discussing it we may, however, recall an observation made in section II : the Dutch want equilibrium in a very vulnerable balance of payments to be achieved by means of competitive exports, and they want full employment for a fast-increasing working population to be achieved through heavy investment. From these points of view it is interesting to note that from 1953-7 gross domestic capital formation was 23 per cent. of G.N.P. in Holland compared to 14.6 per cent. in Britain, and that from 1950-6 the annual price rise was 3.8 per cent. (4.9 per cent. in Britain), the annual growth of real G.N.P. 4.3 per cent. (2.9 per cent. in Britain), and the annual growth of exports at constant prices 10.1 per cent. (2 per cent. in Britain).

The present author believes that wages policy has been helpful in avoiding excessive wage increases and thus in achieving relatively fast economic growth (including a fast increase in exports) without causing serious inflationary strains. Although this belief is largely based on the theoretical considerations mentioned in the next section, the figures are not inconsistent with it, especially if it is borne in mind that some of the price and wage increases that did occur could have been avoided :

(a) The guilder was devalued in 1943 (when the country was occupied) and in 1949 (when the heavy losses due to the war had not been repaired but people had exaggerated ideas

<sup>1</sup>*National Wages Policy in War and Peace*, p. 131.

about the competitive effects on the devaluation of sterling). It has been argued that both devaluations were mistaken because the country's external economic problems were not due to high internal costs but to inability to produce enough with the damaged economic system.<sup>1</sup>

(b) In 1951 the balance of payments showed a deficit on current account of 229 million guilders; in 1953 there was a surplus of 1,279 million guilders. The cost of living rose by 1 per cent.; unemployment changed little, from 68,400 to 84,100 (the total labour force being slightly over three million). In these conditions of a large balance of payments surplus, fairly high employment and stable prices, consideration was given to a revaluation of the guilder. The main argument was that, in view of the very high ratio between foreign trade and the national product, it would be impossible to maintain internal price stability when other countries experienced price increases. In the end the Government sacrificed internal price stability to stability of the rate of exchange; it chose the alternative way of restoring external equilibrium by permitting wages and prices to rise. This led to the wage round of 1954.

(c) In subsequent years unemployment fell further: to 60,000 in 1954, 41,000 in 1955 and 30,000 in 1956. In the latter year the Government conceded demands for a "differentiated" prosperity wage round. It was estimated that there was "room" for a 4 per cent. increase in the wage level but, since in practice there was no differentiation, the actual rise was close to 6 per cent.

(d) As a result of serious war damage, the fast increase in population, rent controls and building subsidies, there has been a housing shortage throughout the post-war period. This condition of disequilibrium, artificial to the extent that it is caused by rent controls and subsidies, has been met by a system of licensing. Popular measures to overcome the housing shortage being politically attractive, the Government has on various occasions permitted far more construction to be undertaken than the building industry could cope with. The

<sup>1</sup>W. Drees, Jr.: *On the Level of Government Expenditure in the Netherlands after the War*, Leiden, 1955, pp. 44 and 45, and *Præ-advies voor de Vereniging voor Staathuishoudkunde*, The Hague, 1957, pp. 8 and 9.



result has been a heavy upward pressure on building wages and costs.

A more direct test of the effectiveness of a wage policy is the extent to which wages actually paid conform to those officially prescribed or permitted. A difference between official and actual wages has been called "wage drift." If this is to describe unintended wage increases, one would have to compare actual with official wage *rates*. Since in several countries no statistics exist for both, comparisons are sometimes made between official rates and actual *earnings*. This may be useful for some purposes but one should be careful in drawing conclusions from such comparisons. Roberts, summing up the experience of a number of wage policies, including the Netherlands case, considers that a "difference between the level of wage rates negotiated and the actual earnings received by workers" shows that "the level of wages set by the institutional machinery has generally been below the market equilibrium."<sup>1</sup> Particularly in the case of the dynamic Dutch wage structure, such a conclusion needs substantial qualification.

Index numbers are available in the Netherlands for hourly rates and earnings in one week of (usually) October, for adult male workers in industry (1947 = 100; earnings exclude profit-sharing bonuses, holiday allowances and certain other fringe benefits).

Year	Rates	Earnings	Percentage increase since previous year		"Wage drift" in %
			Rates	Earnings	
1948	106	106	6	6	0
1949	106	107	0	1	1
1950	117	118	10	10	0
1951	124	125	6	6	0
1952	127	130	2	3	1
1953	128	133	1	2	1
1954	147	154	15	16	1
1955	148	159	1	3	2
1956	160	173	8	9	1
1957	178	193	11	11	0
1958	184	194	3.5	0.5	-3

<sup>1</sup>*National Wages Policy in War and Peace*, p. 163.

These data are taken from official wage statistics. As payment above or below officially approved rates is an offence, it is unlikely that such discrepancies are fully reflected in the figures collected by the official statistical agencies. The difference between increases in rates and earnings must therefore be ascribed largely to factors causing earnings to rise within the framework of official rates and allowances. To that extent the term "wage drift" is misleading: it does not denote unintended wage increases.

Some causes of earnings rising faster than rates without involving "wage drift" in any meaningful sense are found in all countries. They include shifts in the employment structure from lower to more highly paid occupations (more skilled jobs, relatively fewer female workers, shifts from agricultural to industrial employment, etc.), increasing piece-work and higher piece earnings as productivity increases, shift work or overtime.

In the Netherlands some of these factors tend to be more important than they are in other countries. The particular principles according to which the system of wage control is operated have tended to make the wage structure rather dynamic in some respects. For example, between 1951 and 1955 the percentage of industrial piece-workers rose from 45 to 54. There has also been a rather rapid increase in the application of merit rating and job evaluation. The reason is, of course, that all these wage techniques are accepted as a basis for raising the wages of particular groups of workers; the application of these techniques is, in fact, deliberately encouraged. They tend to make the wage structure more refined and rational and to foster productivity. At the same time they have the effect of raising earnings faster than basic rates; but there is nothing alarming in this development.

It is certain that actual earnings will also include a certain amount of "black wages" that will vary with the situation in the labour market. It seems that local labour shortages have sometimes been accompanied by a loose interpretation of the rules concerning piece-work, shift allowances and the grading of workers.<sup>1</sup> Also, employers may circumvent the rules to some

<sup>1</sup>Central Employers' Federation: *Annual Reports* for 1956 and 1957, pp. 82 and 88 respectively.

extent by offering cheap company housing or other non-wage amenities. All this may be regarded as "wage drift." The extent to which actual remuneration has thus come to differ from the official regulations is difficult to measure. On the whole, direct and indirect black wages do not, however, seem to have undermined the system very seriously. On the contrary, it has been argued that the possibility of evading the official rules to some extent may have helped in making the system broadly workable.<sup>1</sup>

The substantial negative "wage drift" between 1957 and 1958 calls for a brief comment. The increase in rates was due almost entirely to the collective agreement of June, 1958, for the building industry. As was noted above (page 181), official rates in this industry had been rather low while the demand for labour had been excessive (page 197). As a result black wages were rampant in this industry. The new agreement involved an increase in rates of 13 per cent. but, due in part to stricter enforcement, earnings hardly rose and in some cases fell. At the same time earnings in other sectors fell slightly due to a reduction in overtime work.<sup>2</sup>

## IX.

Does a wage policy make sense? Comparisons between wages and prices in countries with, and others without, a wage policy have led some empirically-minded observers to reply in the negative. But is this a fair judgment? Looking at the figures given above concerning certain aspects of economic developments in Britain and the Netherlands, and conceding that price increases in the latter country have been far from negligible, does one not also have to recognise that economic conditions in the two countries have been rather different? The Dutch picture includes fairly rapid growth and a high level of investment. These features make it more difficult to avoid inflation than when growth is slow and investment is a much smaller proportion of national income. If one is to judge by empirical evidence alone there is perhaps more cause for

<sup>1</sup>De Galan : *op. cit.*, p. 132.

<sup>2</sup>*De Onderneming*, 24th October, 1959, pp. 852 and 853; this analysis suggests that black earnings in the building industry had to some extent been reflected in the official earnings index.

surprise that wages and prices in the Netherlands have not risen faster than they did, than for summary dismissal of the experiment in wage policy on the ground that there was, after all, a substantial rise.

The state of economic theory and measurement being what they are, it is, however, doubtful whether any well-founded judgment on the effectiveness of a wage policy can be made on the basis of empirical evidence. Opinions on the matter have to be based largely on speculation and theory.

According to one important theoretical interpretation, wage policy is merely a vain attempt at curing symptoms. In this view movements of the wage level depend only on the level of demand in general and that for labour in particular. Wage negotiators may either follow these movements in their formal agreements or settle at some higher or lower level, but in either case their agreements are rather unnecessary, futile or irrelevant. Actual wages will move to the equilibrium level ; if formal agreements fix a different level, wage drift will occur.

There is, of course, a great deal of truth in this view. Fluctuations in the level of demand and wage movements are clearly correlated. A situation or prospect of serious unemployment tends to keep wages stable ; a serious labour shortage will push them up. For example, an inflationary increase in general demand will usually be accompanied by rising profits and an increase in the cost of living as well as by a rising demand for labour. Rising profits and increasing cost of living are among the most popular arguments for wage claims. But the fact that wage increases are obtained on these or other grounds does not mean that collective bargaining or compulsory wage rounds are the cause of the wage increases. On the contrary, there are strong reasons to suspect that the initial inflationary increase in demand would have entailed wage increases anyway. Similarly, rising real wages accompanying general increases in productivity do not depend on collective bargaining or wage rounds but would occur in the absence of such institutions through well-known economic processes as the result of competitive bidding by employers for a limited and increasingly productive labour force.



Conversely, it might be argued that if it is desired to avoid money wage increases exceeding the growth of productivity it will be both necessary and sufficient to assure stability in the supply of money and the level of demand. There would, in this train of thought, be no point in pursuing a separate wage policy.

The advocates of wage policy do not deny that the level of demand may be so high as to make the maintenance of stable prices and wages impossible. Nor that the level of demand may be so low as to render rising prices and wages a virtual impossibility. Wage policy cannot be a substitute for sound monetary and fiscal management. The only thing it could hope to achieve is the avoiding of excessive wage increases without the need for continually imposing on the economy monetary restrictions so severe as to stifle general economic growth.

This implies a belief in the "bargaining theory" of wage determination. In other words, a belief that if in a certain situation collective negotiators settle at a 5 per cent. wage increase, they could also have settled at 3 or 7 per cent. without any widespread "wage drift" or payments below negotiated rates. In this view there is not just one possible wage level at any combination of demand, employment and profits, but a range or zone within which the final result is determined by the objectives and tactics of the negotiators, and their mutual ability to inflict economic damage on each other or on the community. Undoubtedly the level of demand has a major influence on the location and probably on the size of this zone of indeterminacy. With inflation one will be higher and the other wider than in a depression. This zone will, however, hardly ever be zero ; at reasonably full employment it will not be very small.

If this is true, a strong and belligerent trade union movement, continually obtaining wage increases near or at the upper limit of this zone, could probably have its bargaining power curtailed by a stiff fiscal and monetary policy. For example, the monetary authorities might refuse to supply the money needed for maintaining full employment at a relatively fast rate of wage and price increases. Wage policy, however,

seeks to act on the other variables determining wage settlements: the objectives and tactics of wage bargaining. It assumes that with one pattern of objectives and tactics on the part of the negotiators, the actual rate of wage increases will differ from that resulting from other patterns. In other words, the underlying theory of a wage policy is that, at least at any politically realistic level of employment, the power of trade unions to affect the rate of money wage increases is not wholly an illusion. It implies that it is not completely irrelevant to the course of money wages if, for example, in Sweden the trade union centre makes recommendations to its affiliates as regards the desirable limit of wage claims; or if, in the more loosely-organised German trade union federation, the metal-workers union takes account of the repercussions which its wage claims may have on other unions and therefore on the wage level as a whole; or if the Dutch unions in 1951 and in 1957 accepted a fall in real wages to meet the country's balance of payments problems. And, finally, this theory implies that the impact of a wage policy on the rate of increase in wages and prices may just be the difference between "creeping inflation" and stability.

In many countries it is now fashionable to appeal to wage negotiators and price setters to modify their objectives, including among these respect or "responsibility" for some indicator of the national interest, such as the international standing of the currency or the welfare of consumers generally and of pensioners in particular, etc. It does not seem likely that such exhortation can have much lasting effect in conditions of decentralised wage-fixing. In such conditions no individual decision-taker has much influence on the wage level as a whole and he can hardly feel that, if anything goes wrong, he bears much of the responsibility. The chances of having the national interest taken into account by wage bargainers are better if central organisations of employers and trade unions exist, able and willing, as in Sweden, to make and enforce from time to time decisions affecting the economy as a whole.

In the post-war Netherlands the Government has so far hardly been prepared to rely on the industrial organisations to reconcile the national interest with group interests and

aspirations. As we have seen above (page 184), some of these organisations would not welcome a change that would place on their shoulders certain responsibilities now carried by the Government. Indeed, the Swedish experience suggests that even when the central organisations are stronger *vis-a-vis* their affiliates than the Dutch centres are, it is very difficult to enforce unpopular decisions. The element of Government control may well be essential to the implementation of national wage policy in the Netherlands.

Our analysis suggests a second element that probably is crucial to the possibility of implementing such a policy. This is the aspect of "co-ordination" (somewhat akin, it would seem, to the concept of "wage solidarity" in Sweden"). Before 1956 the Dutch system went rather far in ensuring equal pay for similar work. This may well have been a major achievement because it cut short the hundreds of arguments that may be advanced for sectional wage increases which, through the process of leapfrogging, make it difficult to maintain wage stability. In practice, the system before 1956 was operated on the simple rule that when there was scope for a wage increase all should share in it. Otherwise nobody would have an increase unless he could show that his relative basic pay was not in accordance with his comparative job requirements and working conditions. The 1956 experiment, regarded by some foreign observers as a return to common-sense, showed how dangerous, or futile, "differentiation" may be. By accepting other criteria for sectional wage increases the system now seems to be in danger of re-admitting competitive sectional bargaining.

It might be said that these further criteria could at least have the advantage of making wage policy more flexible. As we have seen, however, the pre-1959 system was already fairly flexible, especially as a result of the rules for wage-fixing at the plant level (page 182). The principle of equal pay for similar work was closely approximated as far as *basic* rates and increases therein were concerned. Basic rates being a conspicuous and easily comparable measure of relative remuneration, they are also the aspect on which competitive bargaining is most likely to concentrate. While a wage policy can probably

be implemented most simply if little or no differentiation is allowed in respect of basic rates, considerable flexibility may be obtained through possibilities of piece-work earnings and through the application of other wage techniques as well as, of course, through promotion prospects, cheap company housing, etc.

B. HAAS

*Buitenpost (Z1.)*





## An Index of Wage-Rates by Industries

The index of wage-rates by industries, introduced in this journal in May, 1958,<sup>1</sup> and continued in the issues for May, 1959 *et seq.*,<sup>2</sup> is now being published regularly in the *Guardian* newspaper each month and in each two-monthly issue of the *Economic Review* of the National Institute of Economic and Social Research. In the former publication details are given each month of the most recent changes in the index, and every three months full details are given both of the recent changes, and of the levels of the index for each of about 180 separate industries.

In view of the more frequent appearance of these publications, it has been decided to publish the latest figures in this journal only once each year, in the May issue.

Quarterly tabulations are being prepared, and will be available on application.

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<sup>1</sup>"An Index of Wage-rates by Industries" ; Ely Devons and R. C. Ogley, *The Manchester School*, May, 1958.

<sup>2</sup>"A Monthly Index of Wage-rates by Industries" ; J. R. Crossley, *Ibid.*, May and September, 1959, January, 1960.

TABLE 1

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## ADULT WORKERS

S.I.C. Orders		I	II	III	IV	V	VI			VII	VIII	IX	X	
	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Ferrous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	56	79	19	18	39	102	14	74	61	25	7	46	14
Annual														
1955	143.3	140.7	143.9	144.5	146.1	147.0	146.3	147.9	145.9	143.1	146.0	137.8	142.6	138.1
1956	154.7	151.6	157.9	154.0	155.5	160.8	157.5	159.2	157.0	154.9	156.8	150.7	150.4	142.9
1957	162.5	158.7	166.4	160.9	164.3	168.8	165.4	166.9	165.0	161.3	164.9	158.2	156.3	148.3
1958	168.7	168.3	169.8	166.2	169.4	176.3	171.3	172.7	171.0	165.6	172.0	163.5	161.0	152.5
1959	173.3	173.9	174.8	170.4	175.5	181.5	176.5	177.9	176.1	169.9	176.8	167.7	164.0	153.0
Monthly 1959														
JAN.	172.2	173.9	174.7	168.7	174.3	178.0	176.2	177.9	175.7	169.9	175.8	167.2	163.0	152.8
FEB.	172.7	173.9	174.7	168.8	174.3	178.5	176.4	177.9	176.0	169.9	176.4	167.2	163.2	152.8
MAR.	173.0	173.9	174.8	169.2	174.3	182.6	176.4	177.9	176.0	169.9	176.4	167.2	163.4	153.1
APR.	173.0	173.9	174.8	169.9	174.4	182.6	176.5	177.9	176.1	169.9	176.4	167.3	163.5	153.1
MAY	173.1	173.9	174.8	169.9	174.4	182.6	176.5	177.9	176.1	196.9	176.4	167.3	164.2	153.1
JUNE	173.2	173.9	174.8	169.9	175.7	182.0	176.5	177.9	176.1	169.9	176.4	167.6	164.2	153.1
JULY	173.2	173.9	174.8	170.0	176.0	181.6	176.5	177.9	176.2	169.9	176.4	167.6	164.0	153.1
AUG.	173.6	173.9	174.8	170.7	176.1	182.2	176.5	177.9	176.1	169.9	177.2	167.6	164.0	153.1
SEPT.	173.7	173.9	174.8	170.7	176.1	181.8	176.5	177.9	176.1	169.9	177.2	168.0	164.3	153.1
OCT.	173.8	173.9	174.8	171.8	176.1	182.2	176.5	177.9	176.1	169.9	177.2	167.9	164.2	153.1
NOV.	173.8	173.9	174.8	172.1	176.5	181.8	176.5	177.9	176.2	169.9	177.2	169.3	164.8	153.1
DEC.	174.0	174.1	174.8	172.7	176.6	182.2	176.5	177.9	176.2	169.9	178.2	169.3	164.8	153.1

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	27	37	17	24	11	114	78	20	98	80	29	12	75
140.7	138.9	144.2	148.6	146.9	140.9	145.8	145.3	148.7	140.7	144.3	142.3	138.5	135.3
150.1	151.5	155.0	162.2	163.3	152.1	156.8	156.2	163.1	151.1	154.5	158.7	151.4	144.3
160.6	162.4	163.2	170.7	171.7	158.0	165.5	164.7	170.6	159.5	162.5	166.8	158.6	150.5
171.0	169.5	170.8	178.6	178.9	164.8	172.3	172.0	177.4	164.4	170.3	171.6	164.1	157.2
178.0	174.0	175.6	183.1	182.5	170.8	177.0	176.5	181.8	168.5	174.3	175.2	168.1	161.1
176.2	171.9	174.6	180.6	180.9	169.5	174.4	173.8	181.8	168.2	173.3	175.2	168.1	159.6
176.2	171.9	174.9	180.9	181.0	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	159.6
176.2	171.9	174.9	180.9	181.1	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	161.5
176.2	172.3	174.9	181.6	181.1	169.5	177.2	176.8	181.8	168.2	173.5	175.2	168.1	161.5
176.2	172.3	175.1	182.4	181.1	171.4	177.2	176.8	181.8	168.2	173.8	175.2	168.1	161.5
178.7	172.3	175.4	182.4	181.1	171.4	177.2	176.8	181.8	168.2	173.8	175.2	168.1	161.5
178.7	172.3	175.4	184.5	180.6	171.4	177.2	176.8	181.8	168.2	174.4	175.2	168.1	161.7
178.7	172.3	176.0	184.8	185.2	171.4	177.3	176.8	181.8	168.9	174.8	175.2	168.1	162.7
178.7	176.4	176.3	184.8	185.2	171.4	177.3	176.8	181.8	168.9	174.8	175.2	168.1	162.7
178.7	176.4	176.3	184.0	185.3	171.7	177.3	176.8	181.8	168.9	174.9	175.2	168.1	162.7
178.7	176.6	176.5	184.7	185.3	171.7	177.3	176.8	181.8	168.9	175.0	175.2	168.1	162.7
178.7	177.6	176.5	184.7	185.3	171.7	177.4	176.8	181.8	168.9	176.6	175.2	168.1	162.7



TABLE 2

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## MEN

S.I.C. Orders		I	II	III	IV	V	VI		VII	VIII	IX	X		
	Total All Industries	Agriculture, Forestry and Fishing	Mining and Quarrying	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	61	94	20	19	45	111	16	79	69	24	6	31	8
Annual														
1955	143.4	140.7	143.9	144.9	145.4	146.8	146.2	147.8	145.9	142.4	144.6	137.5	142.0	138.2
1956	154.8	151.1	157.9	154.6	154.7	160.6	157.3	159.2	156.1	154.1	155.4	149.9	148.9	142.8
1957	162.5	158.7	166.4	161.5	163.4	168.8	165.2	166.8	164.7	160.7	163.2	157.3	156.1	148.2
1958	168.8	168.2	169.8	166.7	168.4	176.2	171.1	172.7	170.8	164.8	169.8	162.5	161.0	152.3
1959	173.6	173.9	174.8	170.4	174.1	181.5	176.3	177.9	175.8	169.1	174.3	166.8	164.1	152.9
Monthly 1959														
JAN.	172.6	173.9	174.7	169.3	173.3	177.9	176.0	177.9	175.5	169.1	173.5	165.5	163.2	152.7
FEB.	173.1	173.9	174.7	169.4	173.3	178.4	176.2	177.9	175.8	169.1	174.0	166.0	163.4	152.7
MAR.	173.4	173.9	174.8	169.9	173.3	182.5	176.2	177.9	175.8	169.1	174.0	166.2	163.5	153.0
APR.	173.4	173.9	174.8	170.3	173.4	182.5	176.3	177.9	175.9	169.1	174.0	166.4	163.8	153.0
MAY	173.5	173.9	174.8	170.3	173.4	182.5	176.3	177.9	175.9	169.1	174.0	166.4	164.4	153.0
JUNE	173.5	173.9	174.8	170.3	174.3	182.2	176.3	177.9	175.9	169.1	174.0	166.6	164.4	153.0
JULY	173.5	173.9	174.8	170.4	174.6	181.5	176.3	177.9	175.9	169.1	174.0	166.6	164.2	153.0
AUG.	173.9	173.9	174.8	171.1	174.6	182.2	176.3	177.9	175.9	169.1	174.6	166.6	164.3	153.0
SEPT.	173.9	173.9	174.8	171.1	174.6	181.7	176.3	177.9	175.9	169.1	174.6	167.1	164.5	153.0
OCT.	174.0	173.9	174.8	172.4	174.6	182.2	176.3	177.9	175.9	169.1	174.6	167.0	164.3	153.0
NOV.	174.0	173.9	174.8	172.7	174.8	181.7	176.3	177.9	175.9	169.1	174.6	168.4	165.0	153.0
DEC.	174.3	174.1	174.8	173.4	175.0	182.2	176.3	177.9	175.9	169.1	175.5	168.4	165.0	153.0

XI	XII	XIII	XIV	XV	XVI	XVII		XVIII	XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Gas, Water and Electricity	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
4	15	35	18	23	11	135	92	23	111	65	34	5	41
138.8	135.7	143.1	148.1	145.8	140.0	145.8	145.3	148.7	140.5	143.6	142.3	139.5	135.1
154.4	147.7	153.7	160.9	162.0	151.0	156.8	156.2	163.1	150.9	153.9	158.6	151.6	143.2
162.3	157.0	162.0	169.4	170.9	156.7	165.3	165.1	170.6	158.1	161.9	166.8	160.0	148.4
169.0	163.3	169.7	177.1	177.9	163.7	172.3	172.0	177.4	163.2	169.7	171.5	165.0	157.1
175.6	166.5	174.3	181.5	181.8	171.8	177.0	176.5	181.8	168.6	173.9	175.2	169.6	162.6
174.9	165.1	173.6	179.2	179.9	170.5	174.4	173.8	181.8	168.1	172.6	175.2	169.6	160.6
174.9	165.1	173.8	179.4	180.0	170.5	177.2	176.8	181.8	168.1	172.9	175.2	169.6	160.6
174.9	165.1	173.8	179.4	180.1	170.5	177.2	176.8	181.8	168.1	172.9	175.2	169.6	162.3
174.9	165.4	173.8	180.1	180.1	170.5	177.2	176.8	181.8	168.1	172.9	175.2	169.6	162.3
174.9	165.4	173.8	180.7	180.1	171.6	177.2	176.8	181.8	168.1	173.3	175.2	169.6	162.3
174.9	165.4	174.1	180.7	180.1	171.6	177.2	176.8	181.8	168.1	173.3	175.2	169.6	162.3
176.3	165.4	174.1	182.7	179.5	171.5	177.2	176.8	181.8	168.1	173.8	175.2	169.6	162.6
176.3	165.4	174.6	183.2	184.2	171.5	177.3	176.8	181.8	168.8	174.1	175.2	169.6	163.7
176.3	168.4	174.7	183.2	184.0	171.6	177.3	176.8	181.8	168.8	174.1	175.2	169.6	163.8
176.3	168.4	174.7	182.5	184.1	171.9	177.3	176.8	181.8	168.8	174.4	175.2	169.6	163.8
176.3	169.2	175.1	183.1	184.1	171.9	177.3	176.8	181.8	168.8	174.4	175.2	169.6	163.8
176.3	169.2	175.1	183.1	184.1	173.8	177.4	176.8	181.8	168.8	176.7	175.2	169.6	163.8

TABLE 3

## MONTHLY WAGE RATE INDEX BY INDUSTRIES

## WOMEN

S.I.C. Orders		I	III	IV	V	VI		VII	VIII	IX	X		
	Total All Industries	Agriculture, Forestry and Fishing	Treatment of Non-Metalliferous Mining Products	Chemical and Allied Trades	Metal Manufacture	Total Engineering, Shipbuilding and Electrical Goods	Shipbuilding	Engineering	Vehicles	Metal Goods N.E.S.	Precision Instruments, Jewellery, etc.	Total Textiles	Cotton
Weights	1000	31	14	14	9	55	1	49	19	29	8	123	48
Annual													
1955	143.6	140.9	141.9	150.0	163.2	159.8	147.6	160.7	161.9	150.1	139.3	143.3	138.0
1956	154.3	151.2	149.2	161.4	172.4	172.2	159.6	173.2	176.0	161.8	156.4	149.7	142.8
1957	161.7	159.3	156.1	169.5	181.2	181.5	167.6	182.4	183.5	170.5	161.9	156.5	148.3
1958	168.3	169.0	162.3	175.5	188.3	188.3	173.0	189.3	187.2	178.7	167.2	161.0	152.4
1959	172.7	174.8	166.8	181.8	194.4	193.9	178.4	194.7	191.7	184.9	171.8	163.7	152.8
Monthly 1959													
JAN.	171.4	174.8	164.6	181.0	194.4	193.5	178.4	194.4	191.7	183.5	170.5	162.8	152.8
FEB.	171.5	174.8	164.6	181.0	194.4	193.6	178.4	194.6	191.7	184.3	171.3	163.0	152.8
MAR.	172.1	174.8	164.6	181.0	194.4	193.7	178.4	194.6	191.7	184.3	171.3	163.0	152.8
APR.	172.2	174.8	166.9	181.2	194.4	193.8	178.4	194.7	191.7	184.3	171.4	163.1	152.8
MAY	172.3	174.8	166.9	181.2	194.4	193.8	178.4	194.7	191.7	184.3	171.4	163.7	152.8
JUNE	172.3	174.8	166.9	181.8	194.4	193.8	178.4	194.7	191.7	184.3	171.4	163.7	152.8
JULY	172.4	174.8	167.1	182.0	194.4	193.8	178.4	194.7	191.7	184.3	171.4	163.6	152.8
AUG.	173.1	174.8	167.8	182.0	194.4	193.9	178.4	194.7	191.7	185.1	171.4	163.6	152.8
SEPT.	173.7	174.8	167.8	182.3	194.4	193.9	178.4	194.7	191.7	185.1	171.6	163.9	152.8
OCT.	173.7	174.8	168.1	182.3	194.4	193.9	178.4	194.7	191.7	185.1	171.5	163.9	152.8
NOV.	173.9	174.8	168.1	183.0	194.4	193.9	178.4	194.7	191.7	185.1	173.5	164.3	152.8
DEC.	174.2	174.9	168.4	183.6	194.4	193.9	178.4	194.7	191.7	186.8	173.5	164.3	152.8

XI	XII	XIII	XIV	XV	XVI	XVII		XIX	XX	XXII	XXIII	XXIV
Leather, Leather Goods and Fur	Clothing	Food, Drink and Tobacco	Manufacture of Wood and Cork	Paper and Printing	Other Manufacturing Industries	Total Building and Contracting	Building	Transport and Communications	Distributive Trades	Public Administration and Defence	Professional Services	Miscellaneous Services
5	95	50	9	26	17	1	1	30	161	2	47	255
153·8	141·6	147·8	154·0	152·9	144·1	162·0	162·0	145·2	146·0	145·7	137·9	135·3
166·8	154·5	159·0	176·5	170·2	155·6	177·5	177·5	158·3	156·0	166·4	150·7	144·8
176·0	166·8	166·8	185·6	177·7	162·6	189·4	189·4	163·1	163·9	173·9	157·9	150·2
185·7	174·4	174·2	195·1	184·7	171·1	199·0	199·0	165·3	171·6	175·6	162·7	156·6
192·6	179·7	179·2	199·8	189·5	178·5	205·8	205·8	169·5	175·6	175·6	167·2	160·8
190·6	177·4	177·8	196·6	187·0	176·4	201·6	201·6	169·5	174·8	175·6	167·2	158·5
190·6	177·4	178·5	196·6	187·5	176·4	206·2	206·2	169·5	174·8	175·6	167·2	158·5
190·6	177·4	178·5	196·6	187·6	176·4	206·2	206·2	169·5	175·0	175·6	167·2	160·6
190·6	177·9	178·5	198·2	187·6	176·4	206·2	206·2	169·5	175·0	175·6	167·2	160·6
190·6	177·9	178·5	198·7	187·6	178·1	206·2	206·2	169·5	175·0	175·6	167·2	160·6
190·6	177·9	178·7	198·7	187·6	178·1	206·2	206·2	169·5	175·0	175·6	167·2	160·6
194·6	177·9	178·7	202·5	187·0	178·0	206·2	206·2	169·5	175·6	175·6	167·2	160·6
194·6	177·9	180·1	202·6	192·3	178·0	206·2	206·2	169·5	176·2	175·6	167·2	162·0
194·6	183·0	180·1	202·6	192·2	178·0	206·2	206·2	169·5	176·2	175·6	167·2	162·0
194·6	183·0	180·1	200·9	192·3	182·2	206·2	206·2	169·5	176·2	175·6	167·2	162·0
194·6	184·4	180·3	202·0	192·3	182·2	206·2	206·2	169·5	176·3	175·5	167·2	162·0
194·6	184·4	180·3	202·0	192·3	182·2	206·2	206·2	169·5	177·4	175·6	167·2	162·0



## Books Received

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PENROSE, EDITH TILTON : *The Theory of the Growth of the Firm*. Basil Blackwell, Oxford. 35/- net, pp. 272.

PETERSON, WALLACE C. : *The Welfare State in France*. University of Nebraska Press, Lincoln, Nebraska. \$1.50, pp. 115.

SELDON, ARTHUR (Editor) : *Not Unanimous. A rival verdict to Radcliffe's on Money*. Institute of Economic Affairs, London. 21/- net, pp. 113.

*Far Eastern Economic Review and 1960 Yearbook*. Far Eastern Economic Review Limited, Hong Kong. H.K. \$6, pp. 150.

*Foreign Investment in Economically Underdeveloped Countries*. International Confederation of Free Trade Unions, Brussels, Belgium. 7/- net, pp. 108.

# Income Distribution, the Offer Curve, and the Effects of Tariffs

An earlier article in this journal<sup>1</sup> developed a technique for relating the quantities of imports demanded and exports supplied by a country at a particular commodity price ratio to the distribution of income between factors of production determined by that commodity price ratio, and so relating the offer curve to internal income-distribution, in the Heckscher-Ohlin model of international trade. The application of the technique in that article was confined to the investigation of international trade equilibrium under free trade conditions; this article extends the analysis to the effects of tariffs. Part I recapitulates the essentials of the derivation of the offer curve developed in the preceding article; Part II discusses the nature of the displacement of the offer curve resulting from the imposition of a tariff, and the "normal" effect of a tariff on international equilibrium; Part III analyses two well-known "exceptional" cases; Part IV considers in greater detail the effects of the tariff on internal income distribution; and Part V analyses the conditions on which a tariff may reverse the direction of a country's trade.

## PART I. THE DERIVATION OF THE OFFER CURVE

The world is assumed to consist of two countries, the home country and the foreign, which trade competitively in two commodities,  $X$  and  $Y$ . The foreign country's offer curve is taken as given, and assumed to be such that in free trade equilibrium the home country exports  $Y$  in exchange for  $X$ . The home country is assumed to possess fixed endowments of two factors of production, labour and capital, which are combined under perfectly competitive conditions to produce the two goods, using production functions which are subject to constant returns to scale and such that  $X$  is more labour-intensive than  $Y$ . Given the internal commodity price ratio ruling in the country, the factor endowments and production functions determine the quantities of the two goods that will be produced, and the distribution of

<sup>1</sup>"International Trade, Income Distribution, and the Offer Curve," *Manchester School of Economic and Social Studies*, Vol. XXVII No. 3 (September, 1959), pp. 241-60.

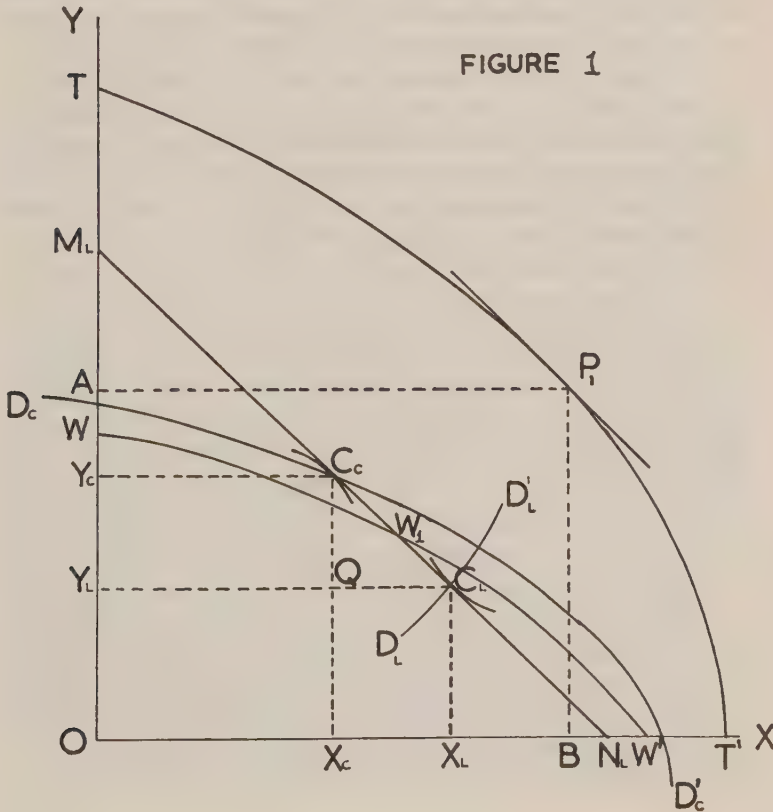
the resulting income between owners of the two factors; the distribution of income, the preferences of factor owners, and the commodity price ratio itself, determine the quantities of the two goods demanded; and the differences between quantities demanded and produced constitute the quantities of exports supplied and imports demanded by the country at the given price ratio under free trade conditions. As the relative price of a commodity rises, production shifts towards that commodity away from the other, and income is redistributed towards the factor used relatively intensively in producing that commodity;<sup>1</sup> the production shift and redistribution of income, together with the income and substitution effects of the price change, alter the quantities of exports supplied and imports demanded by the country. The shape of the offer curve incorporates all these effects.

The derivation of the offer curve is illustrated in Figure 1.<sup>2</sup> In the Figure,  $TT'$  is the country's transformation curve, and  $WW'$  is the income-distribution curve, so drawn that it intersects the vector from the origin to any point on the transformation curve in the ratio corresponding to labour's share in the income produced at that point on the transformation curve. Thus, with production at  $P_1$ , labour's share is  $OW_1/OP_1$ . Labour's budget line is  $M_LN_L$ , with slope equal to that of the transformation curve at  $P_1$ ; tangency of a labour indifference curve with this budget line determines labour's consumption point  $C_L$ , at which point labour demands  $OX_L$  of  $X$  and  $OY_L$  of  $Y$ . Capital's budget line is  $M_LN_L$ , referred to  $P_1$  as origin; tangency with this budget line of a capital indifference curve, drawn with  $P_1$  as origin, determines capital's consumption point  $C_C$ , at which point capital demands  $BX_C$  of  $X$  and  $AY_C$  of  $Y$ . In the aggregate, the country has an excess of demand for  $X$  over domestic production (a demand for imports) of  $X_CX_L$ , and an excess of supply of  $Y$  over domestic demand (a supply of exports) of  $Y_CY_L$ —at the price ratio given by the slope of  $C_C C_L$ , the country will supply  $C_C Q$  of  $Y$  in exchange for  $Q C_L$  of  $X$ . As the price of  $X$  rises,  $P_1$

<sup>1</sup>Throughout this article, it is assumed that the home country remains incompletely specialized in production; what happens after the country becomes completely specialized is discussed in the earlier article (*loc.cit.*, p. 252, n.1.).

<sup>2</sup>Cf. Figure 3 of the earlier article, *loc.cit.*, p. 251.

moves along  $TT'$  towards  $T'$ , and  $W_1$  along  $WW'$  towards  $W'$ ;  $C_L$  moves towards  $D_L'$ , along the locus  $D_LD_L'$ , determined by the joint influence of the rising income of labour and rising price of  $X$ , and  $C_C$  moves towards  $D_C'$  along the locus  $D_CD_C'$ , determined by the influence of the falling income of capital, rising price of  $X$ , and shifting origin  $P$  of capital's indifference curves; and the changing size and shape of  $C_CQC_L$  defines the country's offer curve. With the shape of  $D_CD_C'$  shown in the diagram, the offer curve will be of the normal "elastic" sort, with more imports being demanded and more exports supplied as the price of imports falls; but  $D_CD_C'$  may be rising from left to right over part of its range, in which case, as shown in the previous article, it is possible for the offer curve to be inelastic and even to pass through the origin more than once.





PART II. THE DISPLACEMENT OF THE OFFER CURVE BY A TARIFF<sup>1</sup>

Under conditions of free trade, the internal and world-market commodity price ratios are identical; and the quantities of imports demanded and exports supplied at a particular world-market price ratio are determined by the effects of the identical internal price ratio on the pattern of production, income distribution, and demand for commodities. When a tariff is in force, this is no longer true: the internal and external price ratios differ to an extent determined by the tariff rate, and the quantities of imports demanded and exports supplied at the external price ratio are determined by the effects on the domestic economy of the (different) internal price ratio together with the way in which the recipients of the tariff revenue dispose of it. To put the same point another way, the effect of a tariff is to displace the point on the offer curve corresponding to a particular internal price ratio to a new location such that the external price of imports is lower than the internal by the proportion of the tariff in the domestic price, and that the quantity of imports demanded is greater, and of exports supplied is less, by the amounts demanded by the recipients of the tariff proceeds. The exact nature of the displacement is determined by the rate of the tariff and the way in which expenditure of the tariff proceeds by their recipients is divided between exportables and importables.

Since the way in which the proceeds of the tariff are spent by their recipients helps to determine the resulting displacement of the offer curve, it is necessary to specify these recipients and their behaviour. For some problems in tariff theory, it is most appropriate to consider the government as a separate consumer with its own preferences, receiving the income from the tariff and spending it according to those preferences.<sup>2</sup> For the present

<sup>1</sup>An export duty has exactly the same effects as an import duty at the same rate. See the classic article by Abba P. Lerner, "The Symmetry Between Import and Export Taxes," *Economica*, N.S. Vol. III, No. 11 (August, 1936), pp. 306-13; the argument of this and the following section is to a large extent a re-working of Lerner's analysis on the assumption that tariff proceeds are distributed to factors instead of being spent by the government. Needless to say, the following argument, like Lerner's, arrives at conclusions about the possible effects of a tariff already familiar in general terms to the classical writers on international trade.

<sup>2</sup>This is the technique employed by Lerner, *loc.cit.*

analysis, where the emphasis is on the distribution of income between factors, it is more appropriate to assume that the tariff proceeds are redistributed to factor owners according to some principle of distribution which may range from giving all the proceeds to labour to giving them all to capital, and are spent by the recipients in the same way as would be increments of earned income. This permits the displacement of the offer curve by the tariff to be related to the marginal propensities to spend on imports of the tariff recipients.

The displacement of the offer curve by the tariff is illustrated in Figure 2, which reproduces the relevant parts of the central portion of Figure 1 with some additional detail.  $C_C Q C_L$  defines a point on the country's offer curve, which in the subsequent argument will be assumed to be the free-trade international equilibrium point. Now suppose that a tariff is imposed at the proportional rate  $C_C R/RQ$ , so that for the internal price of imports to be equal to the slope of  $C_C C_L$  the external price must be equal to the slope of  $RC_L$ ; and that the whole proceeds of the tariff are received by capital. With the same internal price ratio and distribution of earned income, and no share in the tariff proceeds to spend, labour's consumption point must remain at  $C_L$ . Thanks to the addition of the tariff receipts to its earned income, however, capital's consumption point will move down its income-consumption line through  $C_C$  to  $C'_C$  on  $C_L R$  produced.  $C'_C$  will be capital's equilibrium consumption point, because at this point total consumption of imports  $Q'C_L$  from earned incomes plus tariff receipts is just equal to what can be paid for at world market prices by the excess  $C'_C Q'$  of the country's production of exportables over the demand for them from earned income plus tariff receipts. The country exports  $C'_C Q'$  of  $Y$  in return for  $Q'C_L$  of  $X$ , of which  $SC_L = C'_C V$  accrues to capital as tariff receipts; of these receipts,  $C'_C T = Q'Q$  is consumed directly by capital, and  $TV$  is used to buy  $C_C T$  of  $Y$  that would otherwise have been exported. Thus the quantity of  $X$  demanded by the country is increased by  $QQ'$ , and the amount of  $Y$  supplied reduced by  $C_C T$ , these quantities being determined by the tariff rate  $C_C R/RQ$  and the ratio  $C_C T/C'_C T$  in which capital divides marginal consumption between  $X$  and  $Y$ . This latter ratio is determined by capital's marginal propensity to spend on imports and exports;

since these sum to unity, the ratio can be said to depend on either propensity alone.<sup>1</sup>

When all tariff proceeds go to capital, the point on the new tariff-inclusive offer curve corresponding to the same internal price ratio as the point on the free trade offer curve defined by  $C_CQC_L$  is defined by  $C'_CQ'C_L$ , where  $C'_C$  is determined by the intersection of the tariff-reduced external price ratio line through  $C_L$  with capital's income-consumption line through  $C_C$ . In the opposite case, when all tariff proceeds go to labour, the point on the tariff-inclusive offer curve corresponding to  $C_CQC_L$  is defined by  $C_CQ''C'_L$ , where  $C'_L$  is determined by the intersection of labour's income-consumption line through  $C_L$  with the line through  $C_C$  of slope equal to the tariff-reduced external price-ratio. In this case the quantity of  $X$  demanded by the country is increased by  $T'C'_L$ , and the quantity of  $Y$  supplied reduced by  $C_LT' = QQ''$ , these quantities being determined by the tariff rate and the ratio  $C_LT'/T'C'_L$  in which labour divides marginal expenditure between  $X$  and  $Y$ , which is determined by labour's marginal propensities to spend on imports and exports. In the general case in which both factors share in the tariff proceeds, the apices of the new triangle corresponding to  $C_CQC_L$  will lie on  $C'_CC_L$  and  $C_LC'_L$  respectively, and the displacement of the offer curve will be determined by the tariff rate, the income-consumption lines of the two factors, and the principle of distribution of tariff proceeds; the last two of these factors can be combined conceptually in the form of a weighted-average income-consumption line, and represented diagrammatically by

<sup>1</sup>The ratio of the increase in the quantity of  $Y$  to the increase in the quantity of  $X$  consumed as income increases is

$$\frac{dY}{dX} = \frac{\frac{\delta Y}{\delta I}}{\frac{\delta X}{\delta I}} = \frac{c_y}{c_x} \cdot p_x$$

where  $I$  is income measured in units of  $Y$ ,  $p_x$  is the (given) price of  $X$  in terms of  $Y$ ,  $c_y = \delta Y/\delta I$  is the marginal propensity to spend on  $Y$ , and  $c_x = p_x \delta X/\delta I$  is the marginal propensity to spend on  $X$ . Since  $c_x + c_y = 1$ ,

$$\frac{c_y}{c_x} \cdot p_x = \frac{c_y}{1-c_y} \cdot p_x = \frac{1-c_x}{c_x} \cdot p_x$$

and the ratio may be said to depend on the marginal propensity to spend on imports or on home goods alone. These alternatives are exploited in the derivation of the conditions required for the exceptional cases discussed below.

a line running south-east through  $C_C$  or north-west through  $C_L$ , whose slope depends on the weighted-average marginal propensities to spend on imports and exports of the tariff recipients.

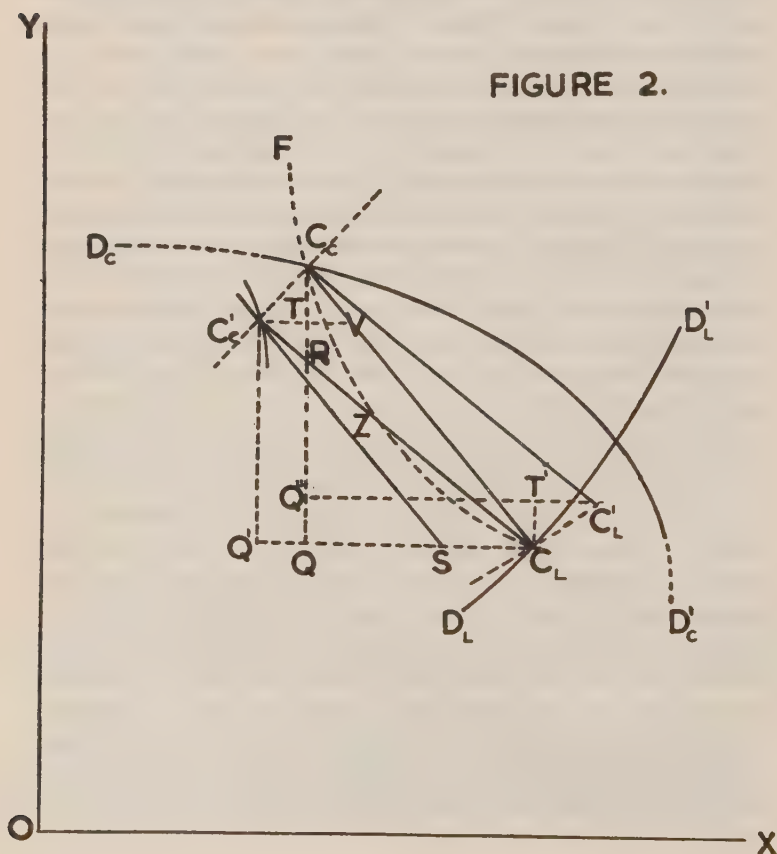
Regardless of how the tariff proceeds are distributed, the quantity of imports demanded is always greater, and the quantity of exports supplied always less, at any point on the tariff-inclusive offer curve than at the corresponding point with the same internal price-ratio on the free-trade offer curve. If the country's free-trade offer curve is of the normal "elastic" shape, more exports being supplied as well as more imports demanded at a lower price of imports, the quantities of exports supplied and imports demanded at a given external price ratio must be less with a tariff in force than it would be under free trade.<sup>1</sup> Hence with an "elastic" domestic free-trade offer curve, the tariff must turn the terms of trade in the country's favour. But if the foreign offer curve is also "elastic," so that the foreigner will not supply a larger volume of imports to the home country in return for a smaller volume of its exports, the terms of trade cannot turn in the country's favour to the extent required to offset the effect of the tariff in raising the internal price of imports. With elastic demands on both sides, the external price of imports must fall and the internal price rise; so that the price and earned income of the factor used relatively intensively in producing importable goods must rise, and the price and earned income of the factor used relatively intensively in producing exportable goods must fall.

The foregoing conclusions about the effects of the tariff on the external and internal price ratios with "elastic" offer curves on both sides can be demonstrated by reference to Figure 2. Suppose first that the slope of  $C_L C'_C$  represents the free-trade equilibrium price ratio; since the apices of the free-trade triangle for that price ratio must lie on  $C_C D_C$  and  $C_L D_L$ , its hypotenuse must be longer than  $C'_C C_L$  or  $C_C C'_L$  if  $C_C Q$  increases as  $C_C C_L$  rotates and shifts to the left, so that the tariff reduces the country's demand for imports and supply of exports

<sup>1</sup>Exports supplied at the given external price ratio with the tariff must be less than they would be at the corresponding higher internal price ratio under free trade, and *a fortiori* less than they would be under free trade at the given external price ratio.



at the free-trade equilibrium price below the free-trade equilibrium quantities, and the world-market price of imports must fall to restore international equilibrium. Now suppose that  $C_CQC_L$  is the free-trade international equilibrium trade triangle, and  $C_LZC_F$  is the foreign offer curve. At the external price ratio with the tariff corresponding to the initial free-trade equilibrium price-ratio equal to the slope of  $C_CCL$ , the foreign country's equilibrium trade triangle would have the hypotenuse  $C_LZ$ , and necessarily be smaller than the domestic equilibrium trade triangle with hypotenuse  $C'C_CCL$  or  $C_CCL'$ , so that there would be an excess demand for imports and supply of exports in the world market and the external and internal prices of imports would have to be higher to restore equilibrium.



The same conclusions can be demonstrated more simply by means of the conventional offer-curve analysis, as in Figure 3. In the Figure,  $OH_f$  and  $OF$  are respectively the home and foreign free-trade offer curves, both representing elastic demands for imports;  $P_f$  is the free-trade equilibrium point; and the slope of  $OP_f$  measures the price of the home country's imports. The tariff shifts the home country's offer curve to  $OH_t$ ; the arrows connect points on the tariff-inclusive offer curve with the corresponding points on the free-trade offer curve with the same internal price-ratio.<sup>1</sup> At the new equilibrium point with the tariff  $P_t$ , the world-market price of imports has fallen to the slope of  $OP_t$ , but the internal price of imports has risen to the slope of  $OP_t$ .

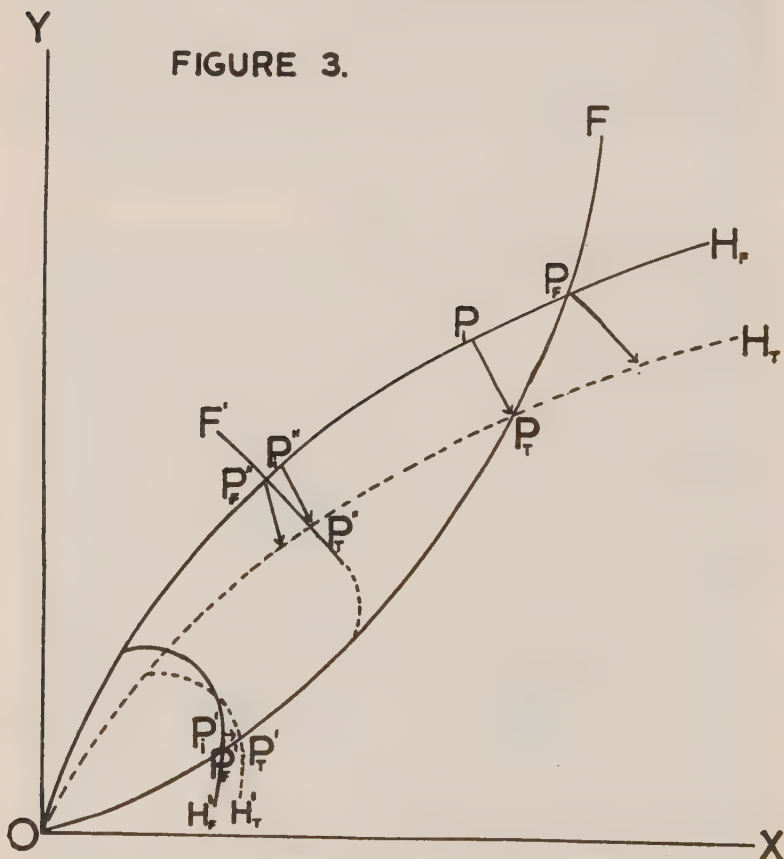
### PART III. TWO EXCEPTIONAL CASES

If both countries' offer curves are of the elastic demand shape, the effect of a tariff is to lower the external price of imports (improve the country's terms of trade) and raise the internal price of imports, with a consequent increase in domestic production of importables and redistribution of earned income towards the factor used relatively intensively in producing importables. If, however, one or other country's offer curve is of the "inelastic" shape, this conclusion does not necessarily hold. If the domestic offer curve is "inelastic," the demand for imports may increase and the terms of trade turn against the country as a result of the tariff. This possibility, which may be termed the "Lerner case,"<sup>2</sup> is illustrated in Figure 3 by the free-trade offer curve  $OH'_f$  and international equilibrium point  $P'_f$  and the tariff-inclusive offer curve  $OH'_t$  and international equilibrium point  $P'_t$  with corresponding internal equilibrium point  $P'_t$ ; with the tariff, the external price of imports has risen to the slope of  $OP'_t$  as compared with the slope of  $OP'_f$  under free trade. If the foreign offer curve is "inelastic," the terms of trade may improve so much that the domestic price of imports falls, production of importables falls, and income is redistributed towards the

<sup>1</sup>The slopes of the arrows decrease from left to right, because as the price of importables falls a higher ratio of importables to exportables is consumed.

<sup>2</sup>See Abba P. Lerner, *loc.cit.*, p. 311 and Figs. 4 and 5, p. 313, for the first rigorous investigation of the conditions required for the imposition of a tariff to have this result.

factor used relatively intensively in producing exportables. This possibility, which may be termed "the Metzler case,"<sup>1</sup> is illustrated in Figure 3 by the foreign offer curve  $OF'$ , free trade international equilibrium point  $P''_f$ , international equilibrium point with tariff  $P''_t$ , and corresponding internal equilibrium point  $P''_i$ ; with the tariff, the internal price of imports has fallen from the slope of  $OP''_f$  to the slope of  $OP''_i$ . The conditions



<sup>1</sup>This case, and the conditions required to produce it, are also to be found in Lerner, *loc.cit.*, text and footnote pp. 310-11 and Fig. 4; but its implications for the distribution of income were first developed by Metzler. See L. A. Metzler, "Tariffs, the Terms of Trade and the Distribution of National Income," *Journal of Political Economy*, Vol. 57, 1949, pp. 1-29.

required for these two exceptional results of the imposition of a tariff to occur in the present model must now be investigated.<sup>1</sup>

(i) *The Lerner Case: Deterioration of the Terms of Trade*

The Lerner case requires that, starting from a given internal price ratio, the imposition of the tariff would lead to a greater increase in the quantity of imports demanded than would a reduction of the internal price to the external price ratio determined by the tariff rate. The effect of the tariff is determined by the (weighted average) marginal propensity to spend on imports of the tariff recipients; the effect of the price reduction is determined by the elasticity of demand for imports. Comparison of  $P'_t$  with  $P_t$  in Figure 3 suggests a conclusion which can be rigorously proved,<sup>2</sup> that the tariff will increase the quantity of

<sup>1</sup>As is evident from Fig. 3, and from the conditions developed below, both exceptional results are simultaneously possible only if the free-trade equilibrium is unstable, a case which can be disregarded here.

<sup>2</sup>As shown on footnote, p. 220, the ratio of the reduction in exports of  $Y$  supplied to the increase in imports of  $X$  demanded resulting from the tariff is

$$\frac{1-c_x}{c_x} p_x,$$

where  $c_x$  is the marginal propensity to spend on  $X$  and  $p_x$  is the given initial price of  $X$ . The ratio of the reduction in exports of  $Y$  supplied to the increase in imports of  $X$  demanded resulting from a reduction in the price of imports is

$$-\frac{dY_t}{dX_t} = \frac{-\delta(p_x X_t)}{\frac{\delta p_x}{\delta X_t}} = \frac{1-\eta_x}{\eta_x} p_x,$$

where  $Y_t$  and  $X_t$  are the quantities traded internationally at the initial price ratio, and

$$\eta_x = -\frac{p_x \delta X_t}{X_t \delta p_x}$$

is the elasticity of the country's demand for imports of  $X$ . For the tariff to increase the quantity of imports demanded more than would the corresponding price reduction, the first ratio must be less than the second, which requires  $c_x > \eta_x$ .

The same result may be established in another way. The tariff proceeds on the initial quantity of imports are

$$\frac{t}{1+t} p_x X_t,$$

where  $t$  is the proportional tariff rate, and the increase in the quantity of imports demanded due to the spending of these proceeds is

$$c_x \frac{t}{1+t} X_t.$$

The reduction in the external price due to the tariff is

$$\frac{t}{1+t} p_x,$$

and the increase in quantity of imports this would induce under free trade is

$$-\frac{\delta X_t}{\delta p_x} \frac{t}{1+t} p_x = \eta_x \frac{t}{1+t} X_t.$$

For the former increase to exceed the latter requires  $c_x > \eta_x$ .



imports demanded more than the price reduction will if the marginal propensity to spend on imports of the tariff recipients is greater than the elasticity of demand for imports.

The Lerner case requires that the marginal propensity to spend on imports from the tariff proceeds should exceed the country's elasticity of demand for imports. This is only possible if each factor has a preference for consumption of the good which uses it relatively intensively in production, in the sense that its marginal propensity to consume that good is higher than that of the other factor.

The effect of the tariff on the demand for imports is a pure income-effect, whose magnitude depends on the marginal propensities to spend on imports of the factor owners and on the distribution of the tariff proceeds between them. The corresponding price reduction affects the demand for imports in three ways. In the first place, the economy's income is increased by the income effect of the fall in the price of imports and by the shift of production towards exports and away from imports induced by the tariff reduction; at the same time income is redistributed away from the factor used relatively intensively in producing imports, so that the income of the factor used relatively intensively in producing exports is raised by more than the total increase in national income; the net effect of these changes on the quantity of imports demanded may be termed the "income effect" of the reduction in the price of imports.<sup>1</sup> Secondly, the shift of production away from production of importables increases the quantity of imports demanded; and thirdly, the reduction of the price of imports induces substitution of imports for exportables in consumption. Since the second and third effects tend to increase the quantity of imports demanded, the tariff can only increase the quantity of imports demanded by more than would the corresponding price reduction if the (income) effect of the tariff on the quantity of imports demanded exceeds the income effect of the price reduction.

<sup>1</sup>This net effect was termed "the income-redistribution effect" in the earlier article; that description is misleading, since the effect includes the effects of the increases in income due to lower import prices and the shift of production towards imports.

This result is impossible if the factor used relatively intensively in export production has the relatively higher marginal propensity to consume imports. In this case, the maximum increase in the quantity of imports demanded with the tariff occurs when the whole of the tariff proceeds is received by this factor. But with the price reduction corresponding to the tariff, this factor receives not only the whole of the increase in the national income, which exceeds the benefit of the lower price of imports (approximately equal to the tariff proceeds on the initial volume of imports) by the increase in national income due to the shift of production towards imports, but income redistributed from the other factor; both the greater increase in national income due to the production shift and the redistribution of income make the income effect of the price reduction on the demand for imports greater than it would be under the tariff.<sup>1</sup>

The condition required for the Lerner case can, however, be fulfilled if the factor used relatively intensively in export production has the relatively lower marginal propensity to consume imports (prefers the goods in whose production it is used relatively intensively). In this case, the minimum increase in quantity of imports demanded with the tariff occurs if the whole proceeds are received by this factor; the larger the share going to the other factor, the larger the increase in the quantity of imports demanded. With the corresponding reduction in the price of imports, the factor used relatively intensively in export production receives the whole of the gain from the lower cost of imports, which cannot increase the quantity of imports demanded by more than the spending of the tariff proceeds would; the increase in the value of national income due to the production shift, which will increase the quantity of imports demanded; and a redistribution of income from the other factor, which will reduce the quantity of imports demanded. In this case, therefore, the income effect of the tariff may exceed the income effect of the corresponding reduction in the price of imports on the quantity of imports demanded, so that the Lerner case is possible.

<sup>1</sup>If the tariff proceeds are spent by the government as a third sector of the economy, and the government's marginal propensity to spend on imports is higher than that of either factor, the Lerner result may occur even if the factor used relatively intensively in export production has the higher marginal propensity to spend on imports.

The foregoing argument is illustrated geometrically in Figure 4. In both parts of the Figure,  $MN$  is labour's budget line at the free-trade international price ratio of the same slope, and  $C_C$  and  $C_L$  are respectively capital's and labour's consumption points at that price ratio. The tariff shifts the external price ratio corresponding to this internal price ratio to that shown by the slope of  $C'_C C'_L$ . Labour's budget line at the internal price ratio equal to the external price ratio produced by the tariff is  $M'N'$ ;  $C''_C$  and  $C''_L$  are respectively capital's and labour's consumption points with the internal price ratio given by the slope of  $M'N'$ . Comparing the free trade equilibrium positions at the initial price ratio and that corresponding to the tariff, the movement from  $C_C$  to  $A$  and from  $C_L$  to  $D$  corresponds to the income effect of the reduction in price ( $A$  and  $D$  lying on the income-consumption lines through  $C_C$  and  $C_L$  respectively and  $A$  lying to the left of  $M'N'$ );  $AB$  corresponds to the substitution of importables for exportables in production induced by the price reduction; and  $BC''_C$  and  $DC''_L$  correspond to the substitution of importables for exportables in the consumption of capital and labour induced by the price reduction.  $C''_C Q C''_L$  is the free trade triangle at the internal price ratio equal to the external price ratio produced by the tariff.

In Figure 4a, capital (the factor used relatively intensively in export production) has a higher marginal propensity to spend on imports than labour, as shown by the fact that  $AC_C$  has a less steep slope than  $DC_L$ . Because  $AC_C$  has a less steep slope than  $DC_L$ , and  $C''_C$  must lie to the north-west of  $A$  and  $C''_L$  to the south-east of  $D$ , the free trade triangle  $C''_C Q C''_L$  must be greater than the triangle  $C'_C Q C'_L$ , which shows the country's demand for imports and supply of exports if all the tariff proceeds were received by capital, the factor with the higher marginal propensity to spend on imports. If any of the tariff proceeds were received by labour, the corresponding trade triangle would be smaller than  $C'_C Q C'_L$ ; so the quantity of imports demanded and exports supplied must be less under the tariff than under free trade with the same external price ratio, regardless of the distribution of the tariff proceeds between the factors, if the factor used relatively intensively in export production has the higher marginal propensity to spend on imports.

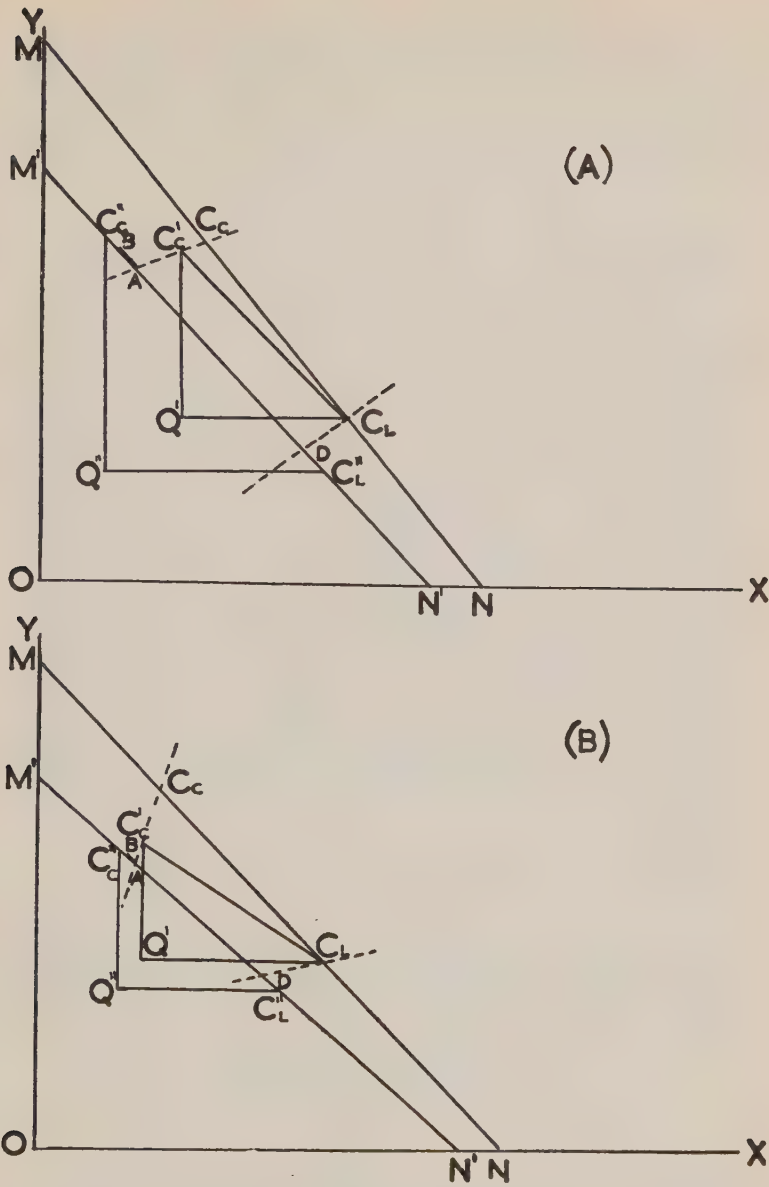


FIGURE 4



In Figure 4b, capital has a lower marginal propensity to spend on imports than labour, as shown by the steeper slope of  $AC_C$  as compared with  $DC_L$ .  $AD$  must therefore be shorter than  $C'C_L$ ,<sup>1</sup> so that it is possible (as shown in Figure 4b) for  $C''C'_L$  to be shorter than  $C'C_L$  and the quantity of exports supplied and imports demanded at a given external price ratio to be less under free trade than when a tariff is in force.

(ii) *The Metzler Case: Reduction of the Internal Price of Imports*

The Metzler case requires that, starting from an initial free-trade equilibrium position, the imposition of the tariff would reduce the quantity of exports supplied by the home country by more than the corresponding increase in the external price of the home country's exports would reduce the quantity of them demanded by the foreigner, so that the external and internal prices of exports must rise (of imports fall) to restore international equilibrium. The effect of the tariff is determined by the (weighted average) marginal propensity to spend on exportable goods of the tariff recipients; the effect of the increased price of exports on the quantity of them demanded is determined by the elasticity of the foreign demand for them. Consideration of  $P''_f$  in Figure 3 suggests the conclusion, which can be rigorously proved,<sup>2</sup> that the

<sup>1</sup>The trade triangle with hypotenuse  $AD$  must have a shorter vertical side than  $C'C'_L$ , indicating a smaller quantity of exports supplied, but it may nevertheless have a longer horizontal side, indicating a larger quantity of imports demanded, as a consequence of the income effect of a free-trade price reduction as compared with that of the tariff.

<sup>2</sup>As shown on footnote, p. 220, the ratio of the reduction in exports of  $Y$  supplied to the increase in imports of  $X$  demanded resulting from the tariff is

$$\frac{c_y}{1-c_y} p_x,$$

where  $c_y$  is the marginal propensity to spend on  $Y$  and  $p_x$  the given initial price of  $X$ . The ratio of the reduction in exports of  $Y$  demanded to the increase in imports of  $X$  supplied by the foreigner resulting from an increase in the price of exports is

$$-\frac{dY_t}{dX_t} = -\frac{\delta Y_t}{\delta P_y} \frac{\delta(P_y Y_t)}{\delta p_y} = \frac{\eta_y}{1-\eta_y} p_x,$$

where  $Y_t$  and  $X_t$  are the quantities initially traded,

$$p_y = \frac{1}{p_x}$$

is the price of  $Y$ , and

$$\eta_y = -\frac{p_y \delta Y_t}{Y_t \delta p_y}$$

is the elasticity of the foreign country's demand for imports of  $Y$ . For the tariff to reduce the quantity of exports supplied by more than

*Continued at foot on opposite page.*

tariff will decrease the quantity of exports supplied by the home country by more than the corresponding increase in the price of exports will decrease the quantity of exports demanded by the foreigner, if the marginal propensity of the tariff recipients to spend on exportable goods is greater than the elasticity of foreign demand for imports of such goods.

Since the possibility of the Metzler case depends on the relationship between the (weighted-average) marginal propensity to spend on exportable goods of the domestic recipients of the tariff proceeds, and the elasticity of foreign demand for exports, the analysis of the relation between domestic income-distribution and the offer curve does not, as in the Lerner case, shed further light on the conditions required for this case to emerge. It does, however, introduce an additional reason why the elasticity of foreign demand for the home country's exports may be low, apart from the usual one of low substitutability of exports for importable goods in foreign consumption. If foreign factors have a preference for the goods in whose production they are used relatively intensively, in the sense that each factor has a higher marginal propensity to spend on the good which uses it relatively intensively in production than has the other factor, the redistribution of foreign production and incomes brought about by a reduction in the price of the home country's exports will tend to reduce the foreign country's demand for those exports. This adverse redistribution-effect will offset part of the usual income

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*Footnote continued from previous page.*

the corresponding price increase would reduce the quantity of them demanded by the foreigner, the first ratio must exceed the second, which requires  $c_y > \eta_y$ .

The same result may be established in another way. If the initial quantity of exports were exchanged for imports and duty collected on these imports, the tariff proceeds would be  $tY_t$ , where  $t$  is the proportional tariff rate; and the reduction in the quantity of exports supplied due to the spending of these proceeds would be  $c_y tY_t$ . The increase in the external price of exports due to the tariff is  $t p_y$ , where  $p_y (= 1)$  is the given initial price of  $Y$ , and the decrease in the quantity of exports demanded abroad that this would induce is

$$-\frac{\delta Y_t}{\delta p_y} t p_y = \eta_y t Y_t.$$

For the reduction in quantity supplied to exceed the reduction in quantity demanded requires  $c_y > \eta_y$ .

For both the Lerner and the Metzler cases to be possible simultaneously requires  $\eta_x + \eta_y < c_x + c_y = 1$ , that is, instability of the initial free trade equilibrium position.

and substitution effects of the price reduction, and may be so strong that the quantity of the country's exports demanded actually falls as their price falls.

#### PART IV. THE TARIFF AND THE DISTRIBUTION OF INCOME<sup>1</sup>

Except in the Metzler case, the effect of the imposition of a tariff is to raise the internal price of imported goods, so promoting a re-allocation of domestic production towards importable goods and away from exportable goods, and in the process raising the relative price of the factor used relatively intensively in producing the country's import good and lowering that of the factor used relatively intensively in producing the country's export good. The effect of a tariff in the normal case, therefore, is to increase the real earnings of the factor used relatively intensively in the "protected" industry, and to reduce the real earnings of the factor used relatively intensively in the export industry.

Contrary to the general implication of previous analysis of the problem<sup>2</sup>, however, the effect of the tariff on the "real wages" of factors is not the end of the story. The effects on the real disposable incomes of factors of the distribution of the proceeds of the tariff collected on the quantity of imports surviving when the tariff is in force must also be taken into account. Since the receipt of any share whatever in the tariff proceeds must increase a factor's real disposable income above its earned income, making allowance for the distribution of the tariff proceeds does not alter the conclusion reached by earlier writers that the factor

<sup>1</sup>Priority in reaching the central conclusion of this Part belongs to Jagdish Bhagwati; see his "Protection, Real Wages and Real Incomes," *Economic Journal*, Vol. LXIX No. 276 (December, 1959), pp. 733-48, esp. pp. 744-48. An earlier writer, S. Venkateswara Rao ("Tariffs, Terms of Trade and the Distribution of National Income," *The Indian Economic Journal*, Vol. VI No. 3 (January, 1959), pp. 410-13) reaches the same conclusion, that the factor whose rate of earnings is reduced by the tariff may nevertheless enjoy a higher real income under the tariff. But his argument, which runs in terms of the effect of the increase in real income due to the terms-of-trade effect of the tariff on the absolute value of a lower relative share, does not distinguish between earnings and income, and does not recognize that it is not the higher total income of the country as such but the fact that part of it appears as tariff proceeds, a share in which can be added to the lower real earnings of the factor damaged by the tariff, which makes the result possible.

<sup>2</sup>See the articles by Stolper and Samuelson, Metzler, and Lancaster, cited in the first footnote to the earlier article.

used relatively intensively in the production of importable goods must enjoy an unambiguous increase in real income as a result of the imposition of the tariff. It does, however, modify the conclusion that the tariff will damage the factor used relatively intensively in the export industry, since that factor may gain more from its share in the tariff proceeds than it loses by the reduction in its real earnings. It is even conceivable that the gain may be so great that the relative share of this factor in the country's income increases, and the relative share of the "protected" factor decreases.<sup>1</sup>

Such a result is impossible if the foreign offer curve is perfectly elastic, so that the country's terms of trade are fixed and independent of the volume of its trade; for in this case the country as a whole must lose by the distortion of consumption and production away from the optimum conforming with the equalization of the internal marginal rates of substitution in production and consumption with the marginal rate of transformation of exports into imports through foreign trade, while the "protected" factor must enjoy a higher real income. This point is easily illustrated by reference to Figure 4; if the slope of  $M'N'$  is the fixed external price ratio, at which capital's consumption point is  $C''c$ , and a tariff is imposed which brings the internal price ratio to the slope of  $MN$ , the most favourable situation for capital is that in which it receives all the tariff proceeds and has the consumption point  $C'c$ , at which point its level of utility is necessarily less than at  $C''c$ .

If, however, the foreign offer curve is not perfectly elastic, so that the tariff secures a terms-of-trade benefit for the country, the damaged factor's share in the tariff proceeds may outweigh its loss of earned income. This will definitely occur when conditions are such that the country is exactly on the borderline between the normal and the Metzler case, with the country's marginal propensity to spend on exportable goods exactly equal to the foreign elasticity of demand for exports, so that real earned incomes of factors are unchanged by the tariff and each factor gains in real disposable income by the amount of its share in the tariff proceeds. The possibility of its occurring in the normal case

<sup>1</sup>In the Metzler case, these conclusions apply to the factor used relatively intensively in import production.





$C_C$ , its location having been shifted to match the shift in the origin of capital's indifference curves due to the shift in the production point of the economy induced by the increased internal price of imports. With the income earned at the internal price ratio associated with the tariff, capital's consumption point would be  $C''_C$ , yielding less satisfaction than  $B$ , the free-trade consumption point; but thanks to the receipt of the tariff proceeds, capital's actual consumption point is  $C'_C$ , yielding a higher level of satisfaction than the level  $B$  enjoyed under free trade.

The conditions under which the factor whose real earned income falls as a result of the tariff is more than compensated by the receipt of its share of the proceeds of the tariff are obviously more restrictive than those under which both factors gain from the tariff when a socially optimal distribution of income is enforced. In the latter case, the higher earned income of the factor used relatively intensively in the production of importable goods can be tapped for purposes of compensation, whereas in the former case only the tariff proceeds are available for this purpose.<sup>1</sup>

#### PART V. POSSIBLE REVERSAL OF TRADE DIRECTION DUE TO A TARIFF

In the earlier article it was pointed out that if each factor has a preference for the consumption of the commodity in whose production it is used relatively intensively, so that the income effect of a reduction in the price of that commodity reduces the quantity of it demanded, the direction of trade may reverse as the price of imports falls (and the price of exports rises). With an imperfectly elastic foreign offer curve, this implied the possibility of two stable international trade equilibria, one involving the export of a commodity at a low price and the other involving the import of it at a high price, in terms of the other

<sup>1</sup>Compensation of the factor whose real earnings are reduced by the tariff for its loss out of the tariff proceeds is clearly impossible in the Lerner case, since the adverse movement of the terms of trade in this case means that both factors together must lose.

commodity.<sup>1</sup> Where such multiple equilibria exist, the effect of a tariff sufficiently high to prohibit the import of a commodity will be to transform the country into an exporter of that commodity at a lower price than that at which it was previously imported. The tariff will thus turn the terms of trade against the country, when these are reckoned by the change in price of the commodity imported with the tariff, for a different reason than that discussed in Part III.<sup>2</sup>

This case is illustrated in Figure 6,<sup>3</sup> where  $H'OMONH$  represents the country's offer curve for increasing prices of  $Y$ . With the foreign offer curve  $F'OF$ , the country might either export  $Y$  at the relatively low price represented by the slope of  $OT$ , or import  $Y$  at the relatively high price represented by the slope of  $OT'$ . Supposing equilibrium initially at  $T$ , a sufficiently high tariff on imports of  $X$  would shift the relevant portion of the offer curve to  $OM'O$ , ruling out the possibility of a trade equilibrium in which the country would export  $Y$ , and forcing it to import  $Y$  at the higher price represented by the slope of  $OT'$ .

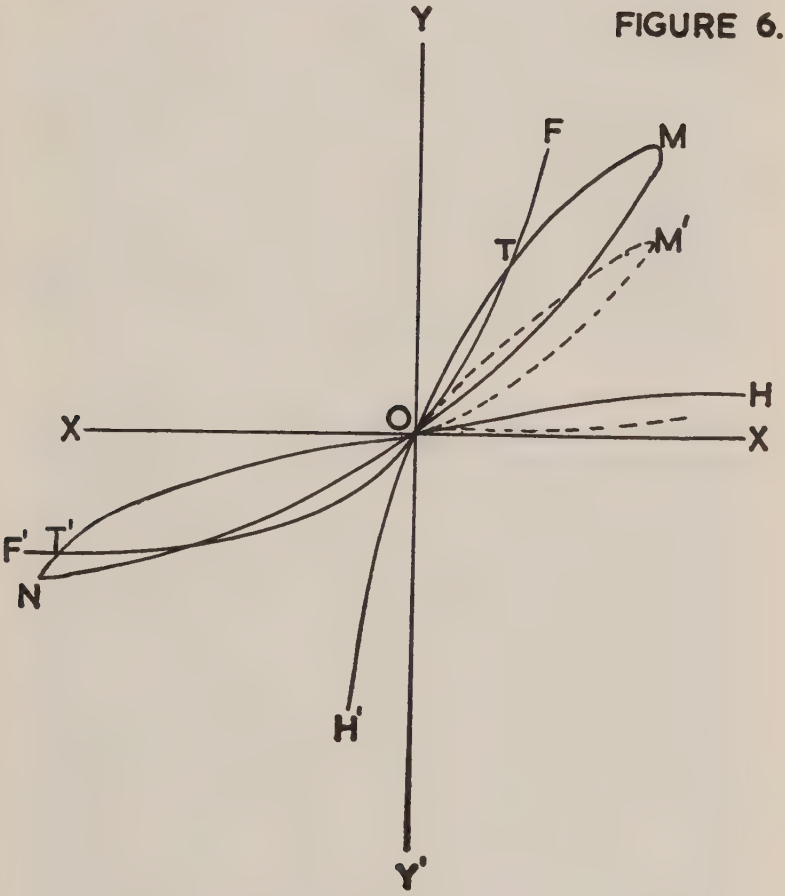
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<sup>1</sup>See the earlier article, *loc.cit.*, p. 257. The statement in that article (p. 257) that "There will or will not be another, unstable, equilibrium position between the two stable equilibrium points, according as the foreign offer curve does or does not lie outside one of the loops in the neighbourhood of the origin" is erroneous, as there will always be an unstable equilibrium between the two stable equilibria; the statement gives the condition for this equilibrium to lie elsewhere than at the origin. It should read as follows: "The unstable equilibrium point between the two stable equilibria will involve export of  $Y$ , export of  $X$ , or no trade, according as the slope of the foreign offer curve at the origin is less steep than, steeper than, or (as in Fig. 6) the same as the slope of the portion of the domestic offer curve common to the two loops (NOM in Fig. 6)."

<sup>2</sup>For the same reason, a tariff levied by the foreign country might convert the home country into an importer of the good formerly exported.

<sup>3</sup>Based on Fig. 6 of the earlier article.



## APPENDIX

## A NOTE ON INCOME-REDISTRIBUTION

While designed for the analysis of the general equilibrium relationship between international trade and domestic income-distribution, the apparatus developed in this and the preceding article is obviously capable of extension to the exploration of a wide range of other problems, since it takes explicit account of the production and consumption equilibrium of the domestic economy. Notably, it could be applied to the analysis of the incidence and economic effects of income and sales taxes in a closed or open economy. Such an extension would range far beyond the intention of these two articles ; but it seems permissible to append a brief analysis of a problem which in a sense is complementary to that considered in the preceding section, namely the effect of a redistribution of income between factors in an open economy on their welfare.

If factor-owners have different marginal propensities to consume importable goods, redistribution of income from one factor to the other will alter the quantity of imports demanded<sup>1</sup> and require an alteration in the terms of trade to restore equilibrium. If each factor has a marginal preference for consuming the commodity in whose production it is employed intensively, the required alteration in the terms of trade will entail a further redistribution of income in favour of the factor towards which income was initially redistributed : if that factor is used intensively in export production, redistribution reduces the supply of exports and demand for imports, raising the equilibrium price of exports and of the factor used intensively in the production ; and conversely if that factor is used intensively in the production of import substitutes.

If, on the other hand, each factor has a marginal preference for the commodity which employs the other factor intensively, the required alteration in the terms of trade will redistribute income back towards the factor from which income was originally redistributed. If the foreign demand for the country's exports is

<sup>1</sup>In the extreme case, redistribution may make the country demand imports of its former export good.

inelastic,<sup>1</sup> this process may go so far that the factor to which income was initially redistributed ends up worse off, and the factor from which income was initially redistributed ends up better off, than in the non-redistribution equilibrium position. If the initial beneficiary of redistribution is the factor used intensively in export production, so that redistribution increases the demand for imports at given terms of trade, there is an intermediate possibility that redistribution will make both factors worse off than would non-redistribution. Conversely, if the initial beneficiary is the factor used relatively intensively in domestic production of importables, so that redistribution reduces the demand for imports, there is an intermediate possibility that redistribution will make both factors better off than would non-redistribution. The difference between the two intermediate possibilities corresponds to a difference in the terms-of-trade effect of redistribution on national income, which is adverse in the first case and favourable in the second.

The effect of redistribution when each factor has a consumption preference for the commodity which employs it intensively is sufficiently straightforward not to require diagrammatic illustration.<sup>2</sup> The effect of redistribution on the alternative assumption is illustrated in Figures *A* and *B*, which show the effects of income redistribution from labour to capital and from capital to labour respectively. In each case, *MN* is the non-redistribution equilibrium budget-line of labour, and *C<sub>c</sub>QC<sub>L</sub>* the non-redistribution equilibrium trade triangle. Redistribution, assumed for simplicity to take the form of transfer of a fixed quantity of *X* from one factor to the other, shifts the budget line for the initial terms of trade to *MN*, and the equilibrium trade triangle for the country to *cql*, *C<sub>c</sub>c* and *C<sub>L</sub>l* being segments of the income-expansion lines of the two factors and their slopes being determined by the factors' marginal propensities to spend on the two goods as explained above. The resulting disequilibrium in international trade shifts the terms of trade to those shown by

<sup>1</sup>This includes both the "normal" case where quantity of exports demanded increases while quantity of imports supplied falls, and the "perverse" case in which quantities of both goods desired to be traded fall.

<sup>2</sup>The interested reader can easily adapt the diagrammatic technique outlined below to this case.



the slope of  $M'N'$ ;  $M'N'$  is the non-redistribution equilibrium budget line for those terms of trade, and  $m'n'$  the budget line after redistribution;  $c'q'l'$  is the equilibrium trade triangle with redistribution,  $C'c'$  and  $C'l'$  being segments of the income-expansion lines of the two factors at the post-redistribution terms of trade.

Figure *A* illustrates the intermediate case in which redistribution towards the factor used intensively in exports (which by assumption increases the demand for imports) makes both factors worse off. Since the point on capital's indifference map corresponding to the utility enjoyed at  $C_c$  is shifted to a new location somewhere between  $C_cQ$  and  $C_cC_L$  by the production shift induced by the change in the terms of trade,  $c'$  must lie closer to the origin of capital's indifference map on the transformation curve than does this point, so that capital is definitely worse off after redistribution;<sup>1</sup> and since  $l'$  lies inside labour's former budget line  $MN$  labour must also be worse off. The fact that the necessary condition for both factors to be worse off is an inelastic foreign demand curve can be established by the following considerations:  $C'C'_c$  must lie right of  $cC_c$  owing to the production shift and the substitution effect on capital's consumption of the change in the terms of trade, while  $l'C'_L$  must lie left of  $lC_L$  owing to the substitution effect on labour's consumption of the change in the terms of trade; and  $c'l'$  must be steeper than  $C_cC_L$  owing to that same change in the terms of trade; hence the base of the triangle  $c'q'l'$  must be shorter than the base of the triangle  $C_cQC_L$ , so long as  $c'$  lies to the right of  $C_cQ$  (which is a necessary but not sufficient condition for capital to be worse off). But  $q'l'$  shorter than  $QC_L$  means that in post-redistribution equilibrium the foreign country is supplying a smaller quantity of imports at a higher price for them, which in turn means that foreign demand for the home country's exports is inelastic. This is therefore a necessary condition for redistribution to make both factors worse off; *a fortiori* is it a necessary condition for redistribution to make capital worse off and labour better off (which in diagrammatic terms requires  $l'$  to be to the right of the labour indifference curve through  $C_L$ ).

<sup>1</sup>Capital could be worse off even if  $c'$  lay left of  $MN$ .

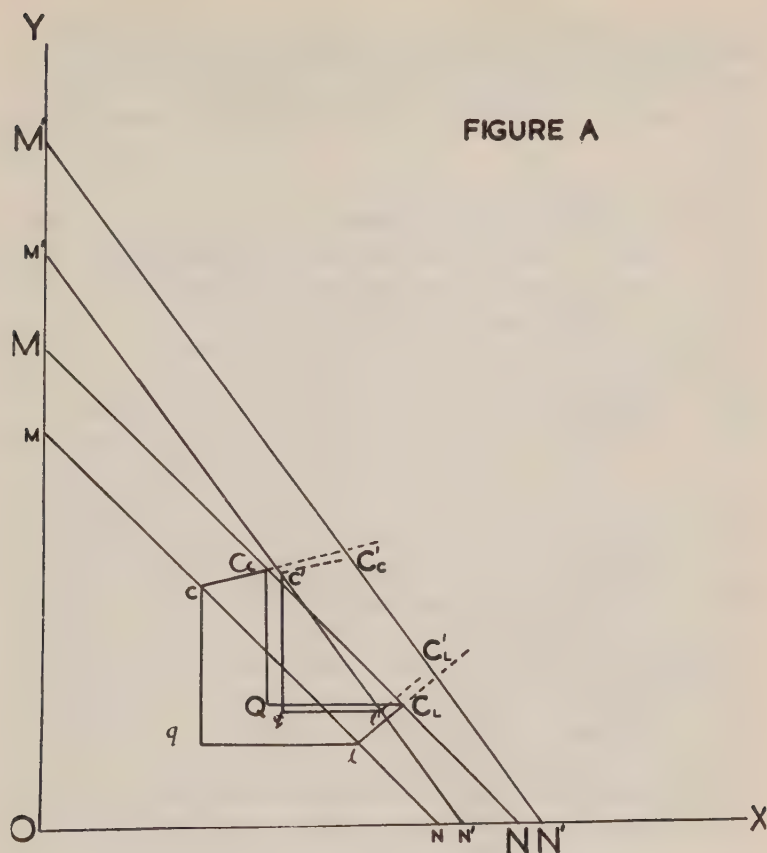


Figure B illustrates the intermediate case in which redistribution towards the factor used intensively in domestic production of importables make both factors better off. Labour is clearly better off, since  $C_L$  lies inside labour's post-redistribution budget line  $m'n'$ . The point on capital's indifference map corresponding to capital's welfare at  $C_C$  is shifted by the production effect of the terms-of-trade change in the north-west direction along a line through  $C_C$  with a slope between those of  $MN$  and  $M'N'$ , so that  $c'$  must lie in a higher capital indifference curve than  $C_C$ . For reasons similar to those discussed in connection with Figure A and embodied in Figure B,  $q'l'$  must be longer



# The Use of Restrictions to Suppress External Deficits<sup>1</sup>

## THE ISSUES AT STAKE

A country in deficit in its balance of payments with the rest of the world has to choose, broadly speaking, between three main types of remedial action. It can *accommodate* the deficit, for example by drawing on its official reserves of gold or foreign currencies or by seeking accommodation from the I.M.F. Or it can *cure* the deficit, for example by undertaking measures of internal disinflation or by devaluing its currency. Or, lastly, it can *suppress* the deficit, by having recourse to restrictions on trade or payments.

The I.M.F. and G.A.T.T. agreements provide for all three types of remedial action. Do they thereby betray an undue degree of eclecticism? Economists agree that "fundamental" disequilibria may appropriately be cured and most would agree also that temporary disequilibria may appropriately be accommodated, but quite an important minority take the line: "Why should provision also be made for disequilibria to be suppressed?" Yet provision is made for such action in Articles VII, VIII and XIV of the I.M.F. agreement and in Articles XII, XIV and XVIII (para. 9) of the G.A.T.T. agreement. Are these articles needed at all? If so, can we approve of them in their present form and how would we like to see them applied in practice?

The issues to be considered can conveniently be grouped under three headings:—

(i) Which are preferable: price restrictions or quantitative restrictions?

(ii) Which are preferable: discriminatory restrictions or non-discriminatory ones?

(iii) In what circumstances (if any) should an external deficit be suppressed by restrictions, instead of being dealt with in some other way?

<sup>1</sup>This paper, an earlier version of which was presented in June, 1959, at the Institut Universitaire de Hautes Etudes Internationales, Geneva, owes much to Professor Robert Triffin, who however bears no responsibility for the views I have expressed.

## PRICE VERSUS QUANTITATIVE RESTRICTIONS

The division of functions between the I.M.F. and G.A.T.T. place payments restrictions within the purview of the former and trade restrictions within the purview of the latter. Thus the I.M.F. has to deal with *price* restrictions in the form of multiple currency practices and with *quantitative* restrictions involving the rationing of foreign exchange ; and between these two types of restrictions the I.M.F. agreement is in effect quite neutral : neither type of restriction is condemned as less desirable (or more undesirable) than the other. G.A.T.T., on the other hand, has to deal with price restrictions mainly in the form of tariffs and with quantitative restrictions mainly in the form of quotas, and between these alternatives the G.A.T.T. agreement is *not* neutral : according to Article XII "restrictions to safeguard the balance of payments" are to be quotas and not tariffs.

Now I regard the neutrality of the I.M.F. on this question as very regrettable, and the preference of G.A.T.T. for quotas, as against tariffs, as even more so. In my view price restrictions (such as tariffs) are in most circumstances to be preferred to quantitative restrictions (such as quotas). The main grounds for my view are familiar ones. First, price restrictions impose a less drastic interference on the freedom of choice of the consumer, who can continue to buy whatever he wants provided he is prepared to pay the duty. Second, price restrictions avoid the need for the issuance of licences (an inevitable concomitant of quantity restrictions) and thus for all the pathological bureaucracy which licencing entails.<sup>1</sup>

There are however further arguments which may be brought in favour of the use of tariffs (or other price restrictions) instead of quantity restrictions such as import quotas. The relevance and force of these arguments is however dependent on the way in which the quantitative restrictions are expected to have their impact on the economy.

When imports are restricted by means of tariffs, the excess of demand over supply, brought about by the restriction,

<sup>1</sup>Except of course when licences are auctioned off to the highest bidders, but in this case the restriction becomes in effect a price restriction, not a quantitative restriction.



is exploited to the benefit of the government, whose tax revenue is correspondingly increased, thereby exercising a deflationary effect on the economy. Under a regime of quotas, by contrast, the excess of demand over supply is either exploited by the holders of the import licences, who may be foreigners or home residents, or is alternatively not exploited at all (the home consumer suffering a shortage of imported goods, but not having to pay any more for them). Let us take each of the three possibilities in turn :

(i) If the import licences are issued to the foreign supplier, who exploits his privilege by charging what the market will bear, he will be able to increase the price per unit of the goods he sends us, thereby adding to the total cost of our imports. When such is the outcome of quantitative restrictions, I cannot see that they should ever be preferred to tariffs.

(ii) If alternatively the import licences are issued to the importer (a home resident), who also charges what the market will bear, he will thereby obtain for himself the same rake-off which the imposition of a tariff would have assured for the government. Such an outcome I regard as objectionable *per se*, but it has also the further disadvantage, *in a fully employed economy*, that the licence holder will proceed to spend his rake-off (or part of it), thereby increasing his own and his fellow countrymen's demand both for imports and for home-produced goods which might otherwise have been exported.

(iii) Finally, if *nobody* exploits the consumer, who continues to buy at the same price as before the smaller quantity of imported goods permitted by the quota restriction, the effect will be to release consumers' income for expenditure on other goods, so that *with a fully employed economy* there will be much the same adverse effect on imports and exports as in (ii) above. In an under-employed economy, however, the demand which is diverted from imported goods newly subject to restrictions would not spend itself to the same extent on attracting imports of unrestricted goods or on retaining exportable goods in the home market, for to some extent additional demand

would be absorbed by an increased output of home produced goods. Such an outcome might therefore be considered as on balance desirable, though if so I do not see why an equivalent result could not be achieved, and indeed achieved with much greater certainty, by the imposition of tariffs instead of quotas, for if the level of internal demand were found to be still unduly low after the imposition of the tariff, the government could always adopt other measures to stimulate recovery.

The above analysis therefore reveals no circumstance in which quotas (or other quantitative restrictions) are to be preferred to tariffs, while the latter are in most circumstances definitely to be preferred, especially for a fully employed economy. In such an economy, I admit, the greater deflationary (or less inflationary) impact of a tariff, as compared with a régime of quotas, is not foolproof : an imprudent government might offset the effect on its budget of the revenue yielded by the new tariff, either by repealing other taxes or by increasing state expenditure. The danger of a government yielding to such a temptation would however be reduced if (as I would like to suggest) the proceeds of a tariff imposed to deal with a balance-of-payments deficit could be segregated from other tax revenue by being credited to an account in the I.M.F.'s name at the deficit country's central bank.

Another possible objection to the use of tariffs, rather than quotas, for the suppression of external deficits, is that the outcome of all the laborious tariff bargaining, undertaken under the aegis of G.A.T.T., would be imperilled if ever countries were permitted, on balance-of-payments grounds, to increase tariffs bound by previous agreements. If one party to a tariff bargain could evade it on balance-of-payments grounds, would not the other parties retaliate ? I myself do not see much force in this objection. Why should the imposition of an additional tariff, imposed specifically for balance-of-payments reasons under (revised) G.A.T.T. rules, be more likely to provoke retaliation than the imposition of quotas ? I cannot see why it should, provided that the relevant rules were recognised to be at least as fair and as stringent as those applied under the present Article XII of G.A.T.T. ; while if, as I envisage, there

occurred at the same time a tightening-up of these rules, I would expect the danger of retaliation to be quite negligible.

A final argument which might be adduced for rejecting tariffs in favour of quantitative restrictions is that they increase the wage earner's cost of living and may thereby initiate a wage-price spiral. Though there may be circumstances where this argument might conceivably be admissible, these could arise only where one could be reasonably satisfied (a) that increases in the wage earner's cost of living do in fact provoke wage increases which otherwise would not occur and (b) that quantitative restrictions have markedly less effect than tariffs do on the prices of consumption goods. The latter point is of course very far indeed from being self evident, not only because the holder of an import licence can usually be relied upon to exploit his privilege by charging a higher selling price, but also because (as we have seen) a tariff is likely to have, as compared with a régime of quotas, a more disinflationary (or less inflationary) impact on overall demand.

My conclusion therefore is that balance-of-payments disequilibria can almost always be more appropriately suppressed by tariffs or other price restrictions (such as multiple currency practices) than by quantitative restrictions, and that the G.A.T.T. agreement should be amended accordingly.

#### DISCRIMINATION VERSUS NON-DISCRIMINATION.

The I.M.F. and G.A.T.T. agreements approve the use of restrictions which discriminate against a country whose currency has been formally declared scarce (I.M.F. Article VII and G.A.T.T. Article XIV para. 5(a) ) but otherwise the whole tenor of the agreements favours the non-discriminatory application of any restrictions imposed on balance-of-payments grounds. Restrictions, including discriminatory restrictions, already in force before the establishment of the I.M.F. and G.A.T.T. may continue (and, in exceptional circumstances, be increased) during the so-called transitional period, which for most countries has still not come to an end, but the annual reviews provided for in the relevant Articles (I.M.F. Article XIV and G.A.T.T. Article XIV para. 1) clearly have, as one of their

purposes, the speedy elimination of discriminatory features (except where directed against a "scarce currency" country) in all restrictions justified on balance-of-payments grounds. The only other loopholes which permit the discriminatory application of such restrictions—paragraphs 2, 3 and 4 of Article XIV of G.A.T.T.—seem all intended to make concessions to a country whose trading partners make non-discriminatory trading very difficult through their unwillingness to adopt any form of multilateral settlement. Since however all the major currencies of the world are now mutually inter-convertible (*de facto* if not always *de jure*) the scope for legitimate appeal to these loopholes in G.A.T.T. must already be very limited indeed.

This, then, is what the I.M.F. and G.A.T.T. agreements have to say on the issue of discrimination versus non-discrimination, and here again I find myself in the role of a heretic. For I hold that in any circumstances where it is appropriate to allow two or more countries to suppress their external deficits by imposing restrictions, these restrictions should almost always be discriminatory.

Suppose that just three countries, *A*, *B* and *C*, were at some one time imposing restrictions for balance-of-payments reasons. What purpose can it serve to require them to impose restrictions against each other, as a condition for being permitted to impose restrictions against all other countries of the world? The *net* effect on the pattern of international settlements of the restrictions which the three countries imposed against each other would be small compared with the *gross* reduction in trade which they would cause, since against the improvement in (say) *A*'s balance with *B* due to *A*'s restrictions on *B*'s goods would have to be set the deterioration due to *B*'s restrictions on *A*'s goods. If the net effect of *A*'s and *B*'s restrictions was none the less favourable to *A*'s balance, how much more sensible it would be to allow *A* and *B* to negotiate bilaterally a reciprocal reduction in restrictions to the point where *B* imposed no restrictions on *A*'s goods, and *A* only relatively minor restrictions on *B*'s goods! Yet it is just such an arrangement which we are proscribing, if we insist on



a completely non-discriminatory application of trade and payments restrictions.

Now in the example I have just given, I may have appeared to imply that the appropriate deviation from the rule of non-discrimination can be attained simply by encouraging bilateral negotiations between all countries which are at any time imposing restrictions for balance-of-payments reasons. Such however is not my view: I would favour bilateral bargaining only *faute de mieux*, since the pattern of restrictions thereby achieved would probably be far from the optimum. What then is the optimum pattern of restrictions?

A complete solution to this problem is anything but easy, as we find on reading Mr. J. M. Fleming's article "On Making the Best of Balance of Payments Restrictions on Imports," published in the March, 1951 issue of the *Economic Journal*. I suggest however that the principal requirement for an optimum solution would be met if we had a suitable procedure for listing all countries in order of "strength," such that all countries imposing restrictions could then be told to exempt from their restrictions all countries below themselves on the list. I also suggest that a reasonably satisfactory procedure for listing countries in the right order for this purpose is implicit in Mr. Ekker's technique for analysing the pattern of bilateral deficits.<sup>1</sup> Admittedly the practical operation of an arrangement on these lines would require that the departures from the rule of non-discrimination would have to be prescribed by some international organization, such as the I.M.F., instead of being left to bilateral negotiation, but to me this is not a serious objection, since I would in any case like to see all restrictions on trade and payments (and particularly those imposed on balance-of-payments grounds)<sup>2</sup> subject to much stricter international supervision and control.

I must also make it clear that the last thing I want is a régime of unfettered recourse to discriminatory trading

<sup>1</sup>Ekker: *Equilibrium of International Trade and International Monetary Compensations*, in *Weltwirtschaftliches Archiv* Band 64 Heft 2, 1950, and my comments thereon in my *International Monetary Co-operation* 1945-56, pages 39-41.

<sup>2</sup>This article is not of course concerned with restrictions allegedly justifiable on other grounds.



practices. I am defending discriminatory practices only in respect of restrictions imposed for balance-of-payments reasons. Restrictions for this purpose are (I shall shortly argue) justifiable only in rather exceptional circumstances, and should be subject to much stricter international control than at present. My case, therefore, amounts to no more than this : that any countries which, on the stricter rules of the game which I am proposing, are eligible to use restrictions for the suppression of their external deficits, should be required by the I.M.F. (or some such body) to deviate in a prescribed manner from the rule of non-discrimination.

#### SHOULD EXTERNAL DEFICITS EVER BE SUPPRESSED ?

I come now to the crucial issue of whether it is ever defensible for a country to suppress its external deficit by recourse to restrictions on trade or payments.

Many of the Articles of the I.M.F. and G.A.T.T. agreements are relevant to this issue. In the first place a distinction is made in the former agreement between restrictions on capital and on current payments ; the former are permitted and under Article VI of its charter the Fund may indeed prescribe their use, as a condition for continued access to the Fund's resources. As regards restrictions on current transactions, these may be applied against a member whose currency has been declared scarce (Article VII of I.M.F. and Article XIV, para. 5 (a) of G.A.T.T.) ; they may also be applied (subject to annual review) by the countries which have not yet emerged from the "transitional period" (Article XIV of I.M.F. and Article XIV, para. 1 (f) of G.A.T.T.) ; the under-developed countries enjoy a special loophole (Article XVIII, para. 9 of G.A.T.T.) ; all other restrictions need to be justified under the more general provisions of Article VIII of the I.M.F. agreement or Article XII of G.A.T.T.

The net effect of all these Articles is not however to lay down very precise rules of the game with regard to restrictions on current transactions. There is a very useful procedure laid down for deciding whether a country is or is not in balance-of-payments difficulties (see particularly Article XII para. 2 (a)

and Article XV para. 2 of G.A.T.T.)<sup>1</sup> and another for formally declaring a currency scarce (Article VII of I.M.F.) ;<sup>2</sup> there are also several provisions directed against obvious but minor abuses ; but otherwise the intention is simply to ensure that all cases of restrictions imposed for balance-of-payments reasons shall be adequately investigated and shall also be open to challenge by aggrieved parties.

I have no wish to see any more precise rules of the game embodied in legal jargon in the text of the two agreements, but I do feel it would be an advantage if the I.M.F. and G.A.T.T. could agree on some unofficial rules (and preferably the same ones !) to guide their deliberations on particular cases as they come up for review. My suggestion is that if a country, say Ruritania, wants to have restrictions on capital transactions she should (as at present) be free to impose them without question, but that if she claims to need restrictions on current transactions for balance-of-payments reasons she should be made to make out a case and to present it in some such manner as the following :

<sup>1</sup>Article XII paragraph 2 (a) of G.A.T.T. seeks to limit restrictions to safeguard the balance of payments :

- (i) to cases where a country needs them to forestall the imminent threat of, or to stop, "a serious decline in its monetary reserves," and
- (ii) to cases where they are needed by a country with "very low monetary reserves," in order to achieve "a reasonable rate of increase in its reserves,"

the interpretation of the three crucial phrases which I have quoted verbatim being (under Article XV paragraph 2) left to the discretion of the I.M.F.

<sup>2</sup>The first two Sections of Article VII deal with the steps to be taken before the final sanction is applied ; this sanction is set out in Section 3, as follows :

(a) If it becomes evident to the Fund that the demand for a member's currency seriously threatens the Fund's ability to supply that currency, the Fund, whether or not it has issued a report under Section 1 of this Article, shall formally declare such currency scarce and shall thenceforth apportion its existing and accruing supply of the scarce currency with due regard to the relative needs of members, the general international economic situation, and any other pertinent considerations. The Fund shall also issue a report concerning its action.

(b) A formal declaration under (a) above shall operate as an authorization to any member, after consultation with the Fund, temporarily to impose limitations on the freedom of exchange operations in the scarce currency.

(a) Ruritania would first need to produce evidence that she is indeed in balance-of-payments difficulties. (This step involves nothing new in principle as compared with what happens at present).

(b) Ruritania would then have to produce evidence that there is at present no excess demand in her economy, or that alternatively she is adopting measures of internal disinflation which may be expected to eliminate excess demand within twelve months, or some such period.

(c) Ruritania would then present her case in the form of one of the following five arguments :

(i) that her home economy is suffering from a temporary excess of demand, which could best be dealt with by forced saving induced by trade or payments restrictions.

or (ii) that a temporary devaluation would (more seriously than temporary restrictions) lead to a permanent change in the cost and price structure of her economy (her economy in this respect operating, as it were, on a ratchet).

or (iii) that her currency is in international use as a key currency, the devaluation of which would cause undue hardship among overseas holders.

or (iv) that devaluation (unlike restrictions) would provoke destabilizing speculation.

or (v) that she should be permitted to suppress her external deficit, rather than cure it, since the latter would impose on her an undue hardship in the form of an adverse change in her terms of trade.

I will now consider these five arguments *seriatim*.

#### THE "FORCED SAVING" ARGUMENT.

A country in balance-of-payments difficulties but whose economy is suffering from excess demand ought not normally to have recourse to trade and payments restrictions, if only because these will not normally improve her balance of payments. For normally the imposition of restrictions will neither increase output nor reduce overall demand : the demand which is by restrictions denied access to certain kinds of imports will

normally be diverted either to other kinds of imports or to home produced goods which otherwise might have been exported.

This statement of what may "normally" be expected is admittedly subject to the reservation that restrictions in the form of tariffs or multiple currency practices could have a deflationary impact on overall demand, if the revenue they produce is allowed to increase the saving of the public sector (above, page 246), but in so far as tariffs are defended on account of the revenue they yield it is not clear why they are to be preferred to other forms of taxation.

However it may further be argued that in appropriate circumstances both price and quantity restrictions may increase the saving of the *private* sector, in that part at least of the expenditure which is choked off by the restrictions may be postponed, rather than diverted towards other goods. This is of course what happened on a large scale in many belligerent countries during the war, when stringent rationing and price control led to considerable "forced" saving over a number of years. But such forced saving cannot go on for ever : either the system of price control and rationing must break down or income receivers will in due course be robbed of their incentive to acquire income. Indeed in normal peacetime circumstances it is doubtful if forced saving is practicable on anything like the scale, or for anything like the period, which obtained in Britain and certain other countries during the war. In wartime the patriotic citizen would boycott the black markets and would also attempt to pull his weight even though any extra income he thereby obtained was largely unspendable. He also expected a speedy and victorious conclusion to the war, followed by a peace in which his wartime savings would be usable to buy things in the shops, and cheaply too. In none of these respects is peacetime patriotism likely to be as effective as wartime patriotism. Nor in peacetime is it practicable to have anything like the same degree of price control and rationing of *home produced* goods as is possible during wartime. In peacetime therefore the "forcing" of forced saving is largely a matter of imposing import restrictions (or equivalent restrictions on payments) in the hope that they will induce a modest postponement of expenditure until such time as the restrictions



can be relaxed. And unless the "victim" of the restrictions is fairly confident that he will not have to wait long for their relaxation, he will probably not reduce his expenditure at all, but will simply change its composition. Thus the "forced saving" argument for the imposition of restrictions should not be allowed to carry much weight except in the case of an economy which is suffering from excess demand but in which this malady can be expected to cure itself, or to be cured by an appropriate dose of disinflation, in a comparatively short period of time; and this case clearly calls for the imposition of only *temporary* restrictions.

I believe the conclusion of the preceding paragraph to hold even in the case of an under-developed country, and for that reason I doubt the wisdom of the loophole provided by Article XVIII, para. 9 of G.A.T.T.<sup>1</sup> I can readily imagine circumstances in which a country in (say) India's position may find it in her interest to exercise control, by the use of import restrictions, over the *composition* of her imports, and I entirely agree that G.A.T.T. should provide for this possibility. But why should India's case be made to turn on her having gone through the preliminary of having got herself into balance-of-payments difficulties? If India gets into balance-of-payments difficulties on account of excess demand (which appears to be the contingency that Article XVIII para. 9 of G.A.T.T. is intended to cover) the imposition of import restrictions is at best only a temporary palliative: the long-term remedy consists of measures to eliminate the excess demand. In this respect an under-developed economy is no different from a developed one.

My feeling, indeed, is that the under-developed countries' loophole, Article XVIII para. 9, should be deleted from G.A.T.T. It might be thought that it does no harm, since no sensible country will want to make use of it, but surely it is doubtful wisdom on the part of under-developed countries to seek special privileges (especially unnecessary ones) under G.A.T.T., in that this must weaken their case for pressing the

<sup>1</sup>This Article exempts for the time being any country "the economy of which can only support low standards of living and is in the early stages of development" from virtually all of its obligations under G.A.T.T.



developed countries to pursue less restrictive commercial policies. Most of the developed countries follow commercial policies which are greatly to the detriment of their under-developed neighbours, in flagrant defiance of the spirit, if not always of the letter, of the G.A.T.T. agreement, but how can they be made to face their heavy responsibilities in this sphere as long as the under-developed countries devote their negotiating skill mainly to securing bigger and better loopholes for themselves?

I have still to consider the question : given that temporary restrictions may sometimes be justifiable as a device for temporarily promoting forced saving, would not temporary devaluation be equally effective to this end? I think it might be, but not necessarily so. For the advantage of restrictions is that they can be imposed selectively on those goods, such as motor cars, expenditure on which is most readily postponable.

Finally, I would like to make it quite clear that in my view the "forced saving" argument is justifiable only in respect of an economy where overall demand is (temporarily) excessive : it is not justifiable when overall demand is inadequate. For the proper solution to the balance-of-payments problems of an under-employed economy is not to save more of the income generated by a *given* level of output, it is to increase the level of output and to ensure that some at least of the extra output serves to replace imports or increase exports. Here then an alternative remedy would be devaluation, unless this is objectionable on the other grounds which we now have to consider.

#### THE "RATCHET" ARGUMENT.

A possible case against *temporary* devaluation is that its effects on the cost and price structure of an economy are not temporary. For example, even a temporary devaluation, by causing an increase in the cost of imports, will provoke a rise in the cost of living, which may in turn set off an irreversible round of wage increases.

I accept that such may well be the case, since wage rates seem frequently to work on a ratchet principle, such that the forces which serve to raise them do not operate in reverse to

lower them. This indeed is my main reason for holding that temporary external deficits should if possible be accommodated by drawing on reserves or by obtaining accommodating finance from the I.M.F. or elsewhere. But supposing that such means of accommodating a deficit are not available on a sufficient scale : is there any reason to suppose that the unwanted permanent side effects of curing a temporary deficit by devaluation can be avoided by resorting to restrictions instead ? I would answer "yes," but only in so far as restrictions can be relied upon to cause a smaller rise in the cost of living than would have been produced by a devaluation of equal severity (i.e. of one causing the same reduction in the external deficit). Such an outcome appears quite possible in an economy suffering from excess demand in circumstances where temporary import restrictions may be expected to lead to "forced saving" in the contrary case of an economy suffering from inadequate demand the circumstances where temporary restrictions may be expected to be appreciably less troublesome than devaluation in their effect on the cost of living seem to be those where quantitative restrictions, rather than price restrictions, are imposed but where the recipients of import licences do not exploit their privilege by charging what the market will bear.

#### THE "KEY CURRENCY" ARGUMENT.

An alternative plea that Ruritania might advance, in support of her case for suppressing, rather than curing, her external deficit, is :

(a) that, though not suffering from excess demand, her home economy has a level of prices out of line with world prices,

(b) that this level of prices cannot, for some reason or other, be reduced by measures of internal disinflation and

(c) that the only other method of bringing home and foreign prices into line, exchange devaluation, would inflict "undue" hardship on foreign holders of Ruritania's currency.

Hence Ruritania must have recourse to trade or payments restrictions.

This argument could be advanced only by the few countries (particularly the U.S.A. and the U.K.) whose national currencies are in widespread use internationally, but so long as the world persists in using national currencies internationally (a practice fraught with so many difficulties and dangers that I would welcome its speedy replacement by a more sensible arrangement<sup>1</sup>) I think we have to accept it as a valid argument for using restrictions, though not of course necessarily a conclusive one.

#### THE "SPECULATION" ARGUMENT.

This argument, which is particularly relevant to a key currency but could also be relevant to other currencies, can be valid only to the extent that devaluation provokes *destabilizing* speculation. To substantiate the argument it would be necessary for a country to show that it had an external deficit too large to be accommodated by drawing on reserves or on other compensatory finance, that measures of internal deflation had for some good reason to be ruled out, and that though devaluation might in due course have a salutary effect on normal commercial transactions its immediate consequence would be to provoke a speculative flight from the currency. Hence the only feasible treatment would include recourse to restrictions, at any rate temporarily.

In circumstances when there might be substance to an argument on these lines it would be particularly appropriate to try restrictions on capital transactions (with which I am not here concerned) as well as on current transactions, but I would certainly not claim that speculative flights can always be checked by restrictions on capital transactions alone. For in the first place controls on international capital movements are notoriously difficult to enforce, while in the second place it is clear that considerable speculative positions can be taken under cover of normal commercial transactions (e.g. by accelerating or delaying normal commercial purchases or payments). Thus an argument claiming to justify restrictions on the grounds that changes in exchange rates provoke destabilizing speculation

<sup>1</sup>Preferably on the lines suggested by Professor Triffin in his article in the June, 1959 issue of the *Quarterly Review of the Banca Nazionale del Lavoro*.

may often need to be taken as an argument for tariffs, quotas, and other restrictions on current transactions.

#### THE "TERMS OF TRADE" ARGUMENT.

A fifth and final way in which Ruritania might seek to justify herself in suppressing her external deficit instead of curing it, is that the latter would impose on her an undue hardship in the form of an adverse change in her terms of trade (i.e. in the ratio of her export prices to her import prices).

But though an argument on these lines deserves to be given serious consideration, it would seem that the circumstances in which it might be valid occur in practice only infrequently. For Ruritania would first have to show that "curing" her external deficit (whether by measures of internal disinflation or by exchange devaluation) would have the effect of turning her terms of trade against her, and this would be very difficult to demonstrate if Ruritania (like, say, Australia) specialised in the export of primary products. In Australia's case, for instance, it is unlikely that the sterling prices of her imports would be appreciably affected by disinflation in her domestic economy or by a devaluation of her currency. Nor would the sterling prices of her main export commodities (such as wool) be greatly affected either. The conditions of production of her main export commodities are such that output is little affected by quite considerable changes in the relationship between the level of Australian wage rates and internal prices on the one hand and the level of her export prices on the other : hence her output of export goods is little affected by disinflation or devaluation, and this output continues to be auctioned off in the world markets for whatever price it will fetch, which (in view of the predominance of overseas buyers) is likewise largely independent both of the state of internal demand in the Australian economy and of the exchange value of the Australian pound. It would thus be difficult for Australia to argue that curing an external deficit by (say) exchange devaluation would cause her to suffer any serious adverse movement in her terms of trade, for devaluation, though it might well influence other important variables (such as the *volume* of imports), does not have much influence on her terms of trade.



Ruritania must therefore argue that in some respect her position is different from that of Australia: otherwise she cannot plausibly claim that measures taken to cure an external deficit would cause a serious adverse change in her terms of trade.

Ruritania might however be able to argue that in her case (unlike Australia's) the conditions of supply, and the method of marketing, of her main export commodities were such that they would be sold at lower prices (measured in a foreign currency) if she devalued her currency or adopted measures to reduce the general level of money costs in her home economy. Such might well be plausibly argued if Ruritania's main export products were manufactures, rather than primary products. In this case, however, it would be necessary for Ruritania to show in addition that the realignment of her prices relative to foreign prices (achieved e.g. by devaluation) would need to be fairly drastic in order to be adequate to cure her external deficit, for otherwise she could hardly claim that the consequential deterioration in her terms of trade would inflict on her an "undue" hardship. In more technical language, Ruritania would have to show that neither her own demand for imports nor the foreign demand for her exports were very elastic: in each case a rather drastic change in price would be needed to induce an adequate change in expenditure.

But could many real countries present a plausible case on those lines? Many countries could not very well claim that their demand for imports is inelastic, since the goods they import have passable locally produced substitutes to which demand would be readily diverted by a change in relative prices, and even where such a claim could be substantiated the next step (of showing that the foreign demand for exports was likewise inelastic) would frequently present difficulties. For it would *prima facie* appear that a small country, such as Belgium or Switzerland, could probably transfer to herself what *to her* would be a substantial amount of custom from her competitors by only a modest cut in export prices. Admittedly a larger country, such as Britain, would probably require a larger percentage cut in export prices to achieve the same *proportionate* increase in export volume, but even in her case



her exports probably enjoy a fairly elastic demand if her overseas customers can be given due time to adjust the direction of their demand to take advantage of lower British prices. It must be conceded, however, that the period of adjustment may be quite long, a matter of years rather than of months. For purchasers of manufactured articles tend to be loyal to the brand or design or source of supply with which they are already familiar, and can commonly be tempted to transfer their custom to a slightly cheaper product or supplier only by a prolonged effort of sales promotion. Thus if Ruritania were a major exporter of manufactured goods, she might be able to argue as follows: "To cure our external deficit *quickly* by devaluation alone we would have to devalue by 30 per cent., which would turn the terms of trade against us by (say) 25 per cent., and thereby cause an undue reduction in our standard of living. However a devaluation of as much as 30 per cent. would *in the long run* be excessive: a 10 per cent. devaluation would in our view be a complete cure if only it were given due time to work. We therefore propose to devalue by only 10 per cent., even though this by itself would leave us for the next (say) five years in external deficit to an extent surpassing our present reserves and all other available accommodating finance. We believe however that it would be reasonable for us to impose *temporary* restrictions aimed at preventing the exhaustion of our reserves, and to ask our neighbours to refrain from retaliation." I cannot see that the "terms of trade" argument can be pushed much further than this.

#### SUMMARY OF CONCLUSIONS.

My main conclusion is that recourse to restrictions on current transactions to suppress an external deficit should be limited to cases where a country (*a*) can claim to be in genuine balance-of-payments difficulties, (*b*) can also claim not to be suffering from excess demand, or alternatively to have adopted measures which will shortly eliminate excess demand and (*c*) can further put forward a reasonable case based on one of five possible arguments: the "forced saving" argument, the

"ratchet" argument, the "key currency" argument, the "speculation" argument, or the "terms of trade" argument.

I argue that these five arguments could only rarely be used to justify the imposition of restrictions for other than a very limited period (say several years).

My minor conclusions are that in cases where recourse to restrictions is reasonably justifiable on the above lines, it will almost always be preferable for these restrictions to deviate in some degree from the rule of non-discrimination, and also for them to take the form of tariffs or multiple currency practices rather than of import quotas or exchange rationing.

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# World Import Trade 1925-1957

## *Introduction and summary*

Since Hilgerdt's work for the League of Nations [4], [5]<sup>1</sup> a number of studies [1] [6] [7] [8] [9] [11] [12] has been devoted to the statistical analysis of the structure and development of world trade. According to the different aims of these investigations, various selections have been made of years, commodity-groups and countries. The mass of work involved in this kind of investigations is the most important factor in establishing their scope.

For the years from 1950 onwards, it is no longer difficult to obtain a detailed specification of the greater part of world trade from statistical publications regularly issued by the Organisation for European Economic Co-operation, the Statistical Office of the United Nations, the International Monetary Fund, etc.

Far more laborious to compile is a survey of the earlier years. Although the League of Nations already in 1938 provided the commodity composition of trade in a uniform classification for a large number of countries, it is not possible to translate that so-called "Minimum List of Commodities" into the present Standard International Trade Classification (S.I.T.C.). Hence in most cases it will be found preferable to return to national trade statistics.

In research of the Netherlands Central Planning Bureau into the development of the Netherlands' exports trade since 1925, the need was felt for a survey of the growth of foreign markets, by countries and commodities. The results of such an investigation for each of the years 1925-1938 and 1952-1957 are now summarised in this paper.<sup>2</sup>

<sup>1</sup>See references at the end of this article.

<sup>2</sup>The initiative for this investigation was taken by E. H. van de Poll, who also determined its scope and guided the earlier part of the computations. Valuable advice was given by J. Sandee and Dr. F. Hartog. The statistical and computational work was largely executed by G. J. Th. Vorstman. The responsibility for the contents of this paper, however, stays entirely with the author.

The selection of countries was made in such a way that the most important foreign markets for the Netherlands' exports were represented separately :

- |                             |                       |
|-----------------------------|-----------------------|
| 1. Netherlands <sup>1</sup> | 6. Italy              |
| 2. Belgium                  | 7. Norway             |
| 3. (Western) Germany        | 8. Sweden             |
| 4. United Kingdom           | 9. United States      |
| 5. France                   | 10. Rest of the world |

The Standard International Trade Classification furnished the starting point for our commodity divisions.

The following groupings were made :

a. Food, beverages, tobacco, oils and fats	S.I.T.C. sections 0, 1, 4
b. Crude materials, inedible, excl. fuels	„ section 2
c. Mineral fuels, lubricants, etc.	„ „ 3
d. Chemicals	„ „ 5
e. Machinery, transport equipment	„ „ 7
f. Textiles	„ groups 65, 84
g. Metals and manufactures of metals	„ „ 67, 68, 69
h. Other manufactured articles	„ all other groups of sections 6, 8, 9.

Imports are valued c.i.f. in current dollars. The results are stated in the tables of Appendix I, in which figures for commodity groups do not always add up to total imports because of rounding.

*Methods of computation for individual countries.*

Import figures for the period 1952-1957 were taken from Foreign Trade Statistical Bulletin, Series II and IV, O.E.E.C. For the years 1925-1938 national trade statistics were used. The connection between these two sources was made—wherever necessary and possible—by calculation of the commodity composition of imports into a country for the year 1952, both on the basis of the national and of the O.E.E.C. trade statistics. In Appendix III, both compositions have been listed. The

<sup>1</sup>Specified in order to exclude Dutch imports from country group no. 10.



"national" commodity group data for the period 1925-1938 were then revised according to the ratios between "national" and O.E.E.C. data for 1952. This correction, applied to each commodity group separately, gave different figures for total imports before and after correction because of shifts in the commodity composition. These differences, which were mostly small (less than 5%) were proportionally distributed over the commodity groups in order to maintain the original total imports figures.

Data in national currency were converted into dollars by means of the exchange rates from Svernison ['].

*Imports into the rest of the world.*

Another method of calculation had to be applied to the country group "rest of the world," consisting of all the countries not specified.

Imports for the years 1925-1938 and for 1952-1957 were found by different methods.

a. 1952-1957.

First, imports of this part of the world were divided into the following sections :

1. Imports from the O.E.E.C. countries and the United States.
2. Imports from all other countries, for the sake of simplicity referred to as "mutual trade" of the rest of the world.

The total value of "mutual trade" of the rest of the world was calculated by subtracting from the total value of world imports the sum of the import values of the specified countries (1-9) and the value of imports of the rest of the world from the O.E.E.C. countries and the United States.

The total value of world imports, used as the starting point, was taken from International Financial Statistics [10]. In these figures the imports of the United Kingdom and the United States are included as "general imports." In our data for the imports of these countries, respectively, "retained imports" and "imports for consumption," are employed. The differences were applied as a correction to the value of world imports.

The value of imports of the rest of the world from O.E.E.C. countries and the United States was calculated from the exports of the O.E.E.C. countries and the United States to the rest of the world, corrected for the difference between c.i.f. and f.o.b. valuation by adding 10% to the value figures.

The commodity composition of the "mutual trade" of the rest of the world was calculated from a sample of nine countries, viz. Canada, Japan, Netherlands Antilles, Federation of Malaya, Australia, Ghana, Nigeria, Colombia and El Salvador. For each commodity group, exports from these countries excluding those to the United States and the O.E.E.C. countries were taken from [2] and corrected for the difference in c.i.f. or f.o.b. valuation by adding 10%. The same calculation was made for imports of the nine sample countries, and the two sets of series were added together. The total represented about 80% of total "mutual trade." The objection to this method for counting twice the mutual trade of the nine countries themselves is of little importance: the value of that trade is only small if compared with total mutual trade.

The sample was taken for the year 1957. The composition by commodity groups in that year (percentage shares) was applied to total "mutual trade" for the whole period.

b. 1925-1938.

The value of total world trade was derived from [3]. Values in old gold parity dollars were converted into current dollars by multiplication of the value for 1934 by 1.285, for the following years by 1.69. The difference between c.i.f. and f.o.b. valuation of American imports was added to world trade.

Total world imports less imports of the specified countries of our system is total imports of the rest of the world.

This total is divided into three sections:

1. Imports from the United Kingdom, Germany and the United States.
2. Imports from other O.E.E.C. countries.
3. Imports from all other countries, referred to as "mutual" trade.

Imports from the United Kingdom, Germany and the United States were estimated from the exports statistics of

these three countries, increasing all values by 10% for the c.i.f.-f.o.b. difference.

Both in 1929 and in 1938, total imports into the rest of the world from the other O.E.E.C. countries amounted to 30% of imports from the United Kingdom, Germany and the United States [5]. For other years the same percentage was maintained.

A somewhat more complicated procedure was used for the individual commodity groups in this total. As table 1 shows, the composition of the exports of the three "sample" countries to the rest of the world showed fairly strong and systematic changes over time, and it is highly probable that exports from other O.E.E.C. countries showed similar tendencies. However, a comparison of the two export patterns for 1952 shows marked differences, so that an extension of the pattern of the three "sample" countries' exports to cover the other O.E.E.C. countries' exports would have been an over-simplification.

**TABLE 1.**  
COMMODITY COMPOSITION (PERC. SHARES) OF THE  
EXPORTS OF SOME COUNTRY GROUPS.

	U.S., U.K. and Germany to the rest of the world			Other O.E.E.C. countries to the rest of the world	Mutual trade of the rest of the world *
	1929	1938	1952	1952	1952
Food ... ..	8.8	6.5	10.6	14.7	17.2
Crude materials ...	8.5	5.5	4.7	6.0	24.9
Mineral fuels ...	8.0	8.4	7.0	6.3	24.9
Chemicals ... ..	5.7	7.0	6.6	6.9	2.4
Machinery, transp. equipm. ... ..	23.9	32.5	37.4	22.9	8.2
Textiles ... ..	17.9	11.0	7.8	11.8	10.5
Metals, metal products ... ..	14.7	16.1	10.2	11.9	6.2
Other manufactures	12.5	13.0	15.7	19.5	5.7
Total ... ..	100	100	100	100	100

\*Average of 9 countries.

The method employed was to multiply for each year and each commodity group the exports of the three "sample" countries to the rest of the world by the ratio of the percentages in the "other O.E.E.C." and the "sample" patterns in 1952, as given in table 1. Exports of food, for instance, were multiplied by  $\frac{14.7}{10.6}$ . The values obtained for the various commodity groups for a given year were then reduced by such a factor that the total of all commodity group figures for that year equalled total imports into the rest of the world from the other O.E.E.C. countries, as estimated above.

Finally, "mutual" trade, which constituted the residual, was divided into commodity groups by means of the percentages given in the last column of table 1.

*Comparison with other studies.*

Some comparisons can be made with other detailed data on world trade. The possibilities are limited because of differences in methods of calculation or in the scope of the figures given. Furthermore, a simple mutual translation of commodity classifications is not always feasible. Only the commodity groups of the "Brussels Nomenclature, 1913" (frequently used by the League of Nations) and the classification of the Economic Commission for Europe had the advantage of being translatable into S.I.T.C. groups. Table 2 gives the connections between our classification and these two.

In Appendix II the comparisons with the new data are summarised. The results seem to be fairly good in most cases. Differences were recognised as mainly originating from insoluble disparities between classifications. A detailed account has been added to the tables of Appendix II.

TABLE 2.—RELATIONS BETWEEN THREE COMMODITY CLASSIFICATIONS AND S.I.T.C.

S.I.T.C.—CODE	CLASSIFICATION IN THIS PAPER										BRUSSELS NOMENCLATURE				ECONOMIC COMMISSION FOR EUROPE							Value (c.i.f.) imports into O.E.C. in 1958 (mrd \$)
	Food, beverages and tobacco	Crude materials	Mineral fuels	Chemicals	Textiles	Machinery and transp. equipment	Metals and manufactures	Other manufactures	Live animals, food and beverages	Crude materials	Manufactures	Gold and silver, unworked	Food, beverages and tobacco	Crude materials	Chemicals	Textiles	Metals and manufactures	Machinery and transp. equipment	Other manufactures			
08, 12	x												x								1.0	
Other 0 and 1	x	x																			9.3	
2																					8.2	
3																					5.9	
4																					0.6	
55	x																				0.1	
56																					0.2	
Other 5																					1.7	
641-01 and 661-02																					0.2	
65, 84																					1.8	
671																					0.1	
Other 67																					0.2	
68, 69																					3.8	
7																					5.7	
92																					0.1	
All other groups																					2.8	

\* Svennilson [1] however includes 699-07/699-18 with "misc. manufactured products."



APPENDIX I.  
TABLE I-1.—IMPORTS INTO THE NETHERLANDS.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	986	333	203	69	47	64	118	68	84
1926	980	312	197	85	49	68	112	71	86
1927	1,023	322	206	78	53	77	118	80	89
1928	1,081	319	220	72	58	94	124	96	99
1929	1,111	292	223	78	60	114	128	108	107
1930	976	243	187	79	48	108	120	91	101
1931	763	193	135	66	41	79	95	65	88
1932	526	140	87	44	31	49	72	41	63
1933	648	150	109	48	40	64	86	56	96
1934	727	140	154	48	44	79	88	72	102
1935	662	130	140	45	41	70	80	64	95
1936	691	137	158	47	41	66	75	70	97
1937	884	181	218	59	45	89	78	113	101
1938	803	166	180	55	45	101	64	99	92
1952	2,223	404	448	345	88	319	124	327	169
1953	2,375	441	466	303	107	368	160	318	213
1954	2,858	555	523	381	137	468	186	356	252
1955	3,208	543	545	456	154	570	209	408	284
1956	3,712	603	588	559	173	695	259	446	329
1957	4,105	642	614	693	200	790	281	525	360

TABLE 1-2.—IMPORTS INTO BELGIUM.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	851	257	271	74	28	49	75	47	50
1926	757	214	252	60	27	41	66	46	50
1927	810	220	263	77	29	48	80	50	43
1928	895	211	288	74	29	71	84	78	59
1929	990	223	290	92	30	94	91	105	65
1930	868	214	222	90	28	98	78	82	57
1931	669	176	167	69	24	69	60	55	49
1932	454	133	112	49	19	41	39	26	36
1933	546	137	160	47	24	49	48	33	48
1934	653	155	203	56	28	59	53	46	54
1935	642	149	218	45	28	52	40	54	57
1936	734	179	258	51	29	55	35	62	64
1937	943	206	328	80	39	74	39	106	71
1938	780	180	264	69	33	65	34	73	63
1952	2,439	503	618	230	106	372	103	328	180
1953	2,407	464	581	228	121	390	113	329	182
1954	2,532	481	585	255	133	410	117	342	209
1955	2,817	461	651	289	154	458	131	437	236
1956	3,278	514	732	365	176	571	137	523	259
1957	3,417	510	753	442	200	580	164	481	286

TABLE I-3.—IMPORTS INTO GERMANY.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	2.942	1.267	982	96	45	61	301	114	76
1926	2.380	1.133	746	82	39	56	160	95	70
1927	3.360	1.371	1.122	108	54	83	303	199	119
1928	3.353	1.380	1.091	118	59	94	263	209	138
1929	3.202	1.282	1.066	146	63	86	226	196	137
1930	2.479	996	771	155	47	62	180	156	112
1931	1.590	648	464	103	39	38	115	102	80
1932	1.108	500	319	61	30	21	62	64	50
1933	1.283	490	438	73	35	27	66	99	55
1934	1.753	575	652	102	43	40	92	180	69
1935	1.674	574	679	109	40	30	88	97	58
1936	1.700	604	686	120	41	27	82	80	61
1937	2.198	833	936	139	42	24	85	75	64
1938	2.188	859	893	156	30	33	82	73	63
1952	3.814	1.382	1.288	341	88	123	162	316	114
1953	3.771	1.307	1.270	286	95	126	227	324	136
1954	4.571	1.599	1.454	302	145	172	240	487	172
1955	5.793	1.704	1.846	507	177	269	298	767	228
1956	6.617	2.058	1.913	715	187	331	340	775	299
1957	7.499	2.228	2.149	867	227	441	421	788	377

TABLE I-4.—IMPORTS INTO THE UNITED KINGDOM.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	5·634	2·642	1·492	180	134	127	360	302	396
1926	5·421	2·463	1·238	450	141	108	305	321	395
1927	5·325	2·499	1·233	243	139	146	322	329	414
1928	5·232	2·481	1·208	188	136	140	328	280	472
1929	5·397	2·502	1·296	200	147	167	328	297	460
1930	4·653	2·205	962	221	120	144	300	260	441
1931	3·614	1·799	617	130	109	111	271	197	381
1932	2·281	1·254	460	108	64	53	73	84	186
1933	2·652	1·383	625	126	76	53	82	101	207
1934	3·428	1·664	889	157	103	86	99	162	268
1935	3·435	1·676	851	161	106	99	95	172	276
1936	3·912	1·840	1·016	180	116	129	106	206	321
1937	4·710	2·074	1·314	231	126	167	121	322	356
1938	4·196	2·041	1·005	226	118	139	112	241	313
1952	9·333	3·531	2·724	946	202	388	237	916	389
1953	9·066	3·760	2·650	874	205	433	141	645	360
1954	9·165	3·776	2·601	913	275	318	215	603	464
1955	10·534	4·110	2·824	1·136	301	384	232	981	565
1956	10·471	4·143	2·705	1·145	289	434	246	968	542
1957	11·038	4·284	2·930	1·296	308	502	291	829	598

TABLE I-5.—IMPORTS INTO FRANCE.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	2.125	485	851	239	71	72	44	268	95
1926	1.932	411	797	218	70	68	39	246	84
1927	2.077	585	779	233	82	62	28	225	83
1928	2.103	532	853	215	84	88	38	176	117
1929	2.282	564	833	272	92	134	48	208	131
1930	2.058	510	640	289	70	171	58	180	141
1931	1.655	588	379	217	62	130	43	117	119
1932	1.172	464	254	165	51	68	24	68	79
1933	1.430	516	377	200	61	71	27	91	87
1934	1.518	523	401	225	64	81	30	102	92
1935	1.384	445	401	217	53	63	24	99	83
1936	1.553	510	479	228	55	63	26	109	83
1937	1.717	467	540	323	56	80	33	134	84
1938	1.326	384	397	263	50	68	17	94	53
1952	4.324	1.173	1.212	931	132	373	70	288	145
1953	3.937	1.137	1.127	751	119	425	51	197	132
1954	4.215	1.183	1.231	788	154	394	51	265	150
1955	4.688	1.173	1.341	837	183	490	61	404	199
1956	5.553	1.463	1.473	997	230	582	77	474	258
1957	6.117	1.434	1.636	1,260	241	699	67	519	262



TABLE 1-6.—IMPORTS INTO ITALY.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	1-042	198	543	37	28	44	2	122	67
1926	1-007	188	515	44	27	46	2	114	71
1927	1-049	222	500	53	32	41	3	116	83
1928	1-174	262	571	47	37	49	3	128	77
1929	1-133	200	570	49	37	57	4	135	80
1930	909	178	405	50	34	50	3	119	71
1931	607	129	261	37	24	30	2	71	53
1932	424	82	198	23	17	23	4	43	35
1933	499	64	252	26	21	29	5	57	45
1934	656	83	319	33	30	39	7	81	66
1935	646	85	267	42	33	42	5	99	74
1936	440	61	158	35	22	38	3	75	49
1937	732	129	293	56	31	39	5	107	74
1938	593	71	219	53	27	52	5	95	72
1952	2-313	447	749	444	87	245	31	209	101
1953	2-420	488	705	456	98	299	43	212	120
1954	2-401	397	715	469	120	302	48	222	128
1955	2-706	512	780	532	141	299	55	249	138
1956	3-169	592	943	625	175	332	49	305	149
1957	3-626	617	1-126	755	180	406	59	326	158

TABLE I-7.—IMPORTS INTO NORWAY.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	247	93	22	22	11	32	30	20	17
1926	244	85	19	24	11	38	32	17	19
1927	254	86	21	23	11	36	37	19	22
1928	273	87	23	21	12	46	37	23	24
1929	286	80	26	26	12	52	41	25	24
1930	286	66	25	23	12	74	39	23	24
1931	216	53	16	17	9	53	33	16	19
1932	124	36	11	13	9	14	18	12	11
1933	143	40	13	16	10	16	21	16	12
1934	187	47	17	20	11	27	27	23	16
1935	203	50	17	21	12	34	27	26	17
1936	232	53	19	24	13	43	31	31	19
1937	321	70	29	32	15	71	37	43	24
1938	293	66	22	30	15	72	32	34	23
1952	872	129	94	86	33	246	94	143	48
1953	912	140	74	86	35	289	96	136	56
1954	1,019	137	84	84	43	366	97	146	62
1955	1,088	150	98	109	48	369	89	167	59
1956	1,205	164	96	136	54	401	96	194	63
1957	1,273	154	94	145	65	428	104	211	72

TABLE 1-8.—IMPORTS INTO SWEDEN.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	389	105	82	39	19	32	45	32	35
1926	399	103	84	41	22	32	50	34	33
1927	425	116	75	46	24	35	55	37	37
1928	458	126	83	41	24	47	57	39	41
1929	474	125	78	51	25	45	59	50	42
1930	446	104	58	51	28	54	65	48	40
1931	361	88	41	40	25	44	55	38	32
1932	213	57	26	30	18	17	31	18	17
1933	241	58	32	36	22	19	33	22	19
1934	339	64	51	46	30	35	46	39	28
1935	373	74	55	50	32	43	46	44	31
1936	419	76	62	58	35	53	51	52	34
1937	541	95	74	82	39	70	59	82	42
1938	525	93	68	78	40	83	54	68	41
1952	1,732	275	196	331	89	319	124	284	115
1953	1,577	252	161	271	92	317	179	184	120
1954	1,774	280	170	273	116	380	173	233	149
1955	1,990	309	181	346	127	408	179	280	161
1956	2,205	326	176	434	146	473	171	314	165
1957	2,426	322	200	459	157	561	189	345	194

TABLE I-9.—IMPORTS INTO THE UNITED STATES OF AMERICA.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	4-649	1-149	2-051	122	196	20	333	304	475
1926	4-874	1-183	2-107	146	192	28	334	351	535
1927	4-603	1-199	1-837	127	186	30	330	316	579
1928	4-501	1-185	1-696	150	206	32	333	315	584
1929	4-839	1-215	1-856	162	207	45	328	377	648
1930	3-367	884	1-197	164	161	33	209	239	480
1931	2-300	672	748	107	119	18	151	131	354
1932	1-455	500	426	71	69	9	88	69	222
1933	1-576	509	521	32	87	9	103	102	214
1934	1-800	632	558	45	96	13	110	115	231
1935	2-243	811	711	47	101	16	131	161	267
1936	2-666	915	894	50	115	20	160	186	325
1937	3-311	1-059	1-204	53	147	27	188	252	381
1938	2-145	730	696	47	111	19	118	141	283
1952	11-622	3-628	3-332	760	352	388	442	1-550	1-171
1953	11-601	3-746	2-830	828	409	383	429	1-680	1-297
1954	10-984	3-725	2-542	899	336	386	401	1-301	1-394
1955	12-235	3-524	3-067	1-124	374	482	513	1-531	1-620
1956	13-544	3-647	3-088	1-386	405	706	607	1-836	1-869
1957	14-077	3-774	2-940	1-699	426	937	596	1-741	1-964

TABLE I-10.—IMPORTS INTO THE REST OF THE WORLD.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	14·709	1·915	2·224	2·097	558	1·796	3·132	1·611	1·376
1926	14·567	1·917	2·161	2·226	571	1·907	2·770	1·597	1·418
1927	15·255	2·039	2·450	2·270	602	2·052	2·567	1·741	1·534
1928	15·993	2·083	2·566	2·341	647	2·341	2·659	1·837	1·518
1929	16·320	2·057	2·525	2·417	688	2·551	2·552	1·938	1·593
1930	13·338	1·762	2·139	2·165	591	2·017	1·819	1·524	1·322
1931	9·232	1·206	1·610	1·518	452	1·286	1·208	977	975
1932	6·342	818	1·160	1·072	320	815	923	635	598
1933	7·137	907	1·313	1·199	377	897	1·034	728	682
1934	9·351	1·145	1·711	1·575	481	1·286	1·274	1·009	870
1935	9·633	1·124	1·667	1·574	506	1·464	1·257	1·097	945
1936	10·108	1·138	1·616	1·581	530	1·696	1·357	1·142	1·048
1937	12·562	1·367	1·832	1·949	642	2·226	1·605	1·705	1·236
1938	11·546	1·346	1·678	1·826	562	2·241	1·308	1·439	1·145
1952	41·593	5·523	4·506	5·019	2·270	10·885	3·884	3·888	5·618
1953	38·440	4·698	3·460	3·930	2·217	10·961	3·359	4·474	5·342
1954	40·163	4·930	4·070	4·329	2·653	11·195	3·617	4·370	5·000
1955	44·002	5·583	4·751	4·872	2·958	12·180	3·768	4·931	4·959
1956	48·412	6·115	5·105	5·006	3·211	14·111	3·670	5·835	5·360
1957	54·096	6·846	5·903	5·664	3·655	15·252	4·040	6·911	5·826



TABLE I-11.—WORLD IMPORTS, TOTAL.

	Total Imports	Food, Drink, etc.	Crude Materials	Mineral Fuels	Chemicals	Machinery	Textiles	Metals and Manuf.	Other Manuf.
				(millions of \$)					
1925	33·573	8·443	8·721	2·976	1·137	2·297	4·440	2·887	2·672
1926	32·560	8·010	8·116	3·375	1·147	2·391	3·870	2·891	2·761
1927	34·182	8·660	8·485	3·257	1·212	2·609	3·843	3·112	3·003
1928	35·061	8·666	8·599	3·267	1·292	3·002	3·926	3·181	3·128
1929	36·035	8·541	8·763	3·494	1·361	3·345	3·804	3·439	3·287
1930	29·381	7·162	6·606	3·287	1·138	2·811	2·870	2·720	2·788
1931	21·004	5·550	4·437	2·304	905	1·859	2·032	1·769	2·149
1932	14·100	3·983	3·053	1·636	628	1·109	1·335	1·059	1·297
1933	16·155	4·254	3·838	1·803	753	1·233	1·505	1·304	1·465
1934	20·412	5·027	4·954	2·307	929	1·744	1·824	1·830	1·797
1935	20·895	5·117	5·004	2·309	950	1·910	1·791	1·912	1·901
1936	22·454	5·511	5·346	2·374	997	2·187	1·925	2·013	2·100
1937	27·919	6·481	6·765	3·004	1·183	2·866	2·249	2·939	2·433
1938	24·394	5·936	5·422	2·802	1·030	2·873	1·825	2·359	2·148
1952	80·265	16·994	15·166	9·432	3·447	13·658	5·269	8·250	8·050
1953	76·507	16·434	13·322	8·013	3·497	13·989	4·798	8·497	7·957
1954	79·682	17·063	13·976	8·694	4·113	14·391	5·142	8·324	7·979
1955	89·061	18·070	16·081	10·207	4·617	15·910	5·534	10·194	8·449
1956	98·166	19·626	16·818	11·368	5·045	16·636	5·651	11·731	9·292
1957	107·673	20·810	18·345	13·279	5·659	20·596	6·210	12·677	10·097

## APPENDIX II.

## COMPARISON OF RESULTS WITH OTHER STUDIES.

1. F. Hilgerdt<sup>[4]</sup>.

Following the commodity classification of the Brussels nomenclature reduced to crude materials and manufactured products, Hilgerdt arrived at the commodity composition of world trade as shown in table II-1, where also a comparison with our own figures is made.

TABLE II-1.  
VALUE OF WORLD IMPORTS BY COMMODITY GROUPS.

Period	Crude materials		Manufactured articles		Total	
	Hilgerdt	Our estimates	Hilgerdt	Our estimates	Hilgerdt	Our estimates
			(billions of \$)			
aver. 1926-1929 ...	21	21	13	13	34	34
1930 ...	18	17	11	12	29	29
aver. 1936-1938 <sup>1</sup> ...	16	15	9	10	25	25

<sup>1</sup>Hilgerdt's values are in gold dollars of the old (before 1934) parity. An exchange rate to current dollars was used of 1 gold dollar = \$1.69.

The import values by countries as given by Hilgerdt, are rearranged in table II-2 to be compared with ours. Only the year 1930 was chosen for this comparison; the other years give an analogous picture. In Hilgerdt's classification S.I.T.C. group 67 (metals) is included in crude materials, but in our system this group comes under manufactured articles. This difference causes a systematical discrepancy between the series.

**TABLE II-2.**  
**VALUE OF IMPORTS BY COUNTRIES BY COMMODITY**  
**GROUPS, 1930.**

Countries			Crude materials		Manuf. articles		Total	
			Hilgerdt	Our groups a, b, c	Hilgerdt	Our groups d, e, f, g, h	Hilgerdt	Our totals
			(millions of \$)					
Netherlands	...	...	548	510	424	466	972	976
Belgium	...	...	601	526	260	342	861	868
Germany	...	...	2·048	1·921	428	558	2·476	2·479
United Kingdom	...	...	3·628	3·388	1·030	1·265	4·658	4·653
France	...	...	1·566	1·439	492	619	2·058	2·058
Italy	...	...	658	632	255	277	913	909
Norway	...	...	122 <sup>1</sup>	115	164	171	286	286
Sweden	...	...	225	213	221	233	446	446
United States	...	...	2·288 <sup>2</sup>	2·245	773 <sup>2</sup>	1·112	3·061 <sup>2</sup>	3·367
Rest of the world	...	...	6·086 <sup>3</sup>	6·065	7·263 <sup>3</sup>	7·274	13·349 <sup>3</sup>	13·339
Total	...	...	17·770	17·054	11·310	12·327	29·080	29·381

<sup>1</sup>Derived from total imports (our figures) and imports of manufactured articles (Hilgerdt).

<sup>2</sup>f.o.b.

<sup>3</sup>Derived from total world imports and imports of specified countries.

## 2. Review of World Trade [2].

In this publication world trade for the years 1929-1938 is stated by commodity groups. In table III-3 the percentage composition in each of these years is compared for the two classifications.

**TABLE II-3.**  
WORLD TRADE BY COMMODITY GROUPS, PERCENTAGE  
DISTRIBUTION, 1929-1938.

Year	Food, beverages, tobacco		Crude materials		Finished products	
	League of Nations	Our com- putations, group a	League of Nations <sup>1</sup>	Our com- putations, groups b, c	League of Nations	Our com- putations, groups d, e, f, g, h
1929	24.5	23.7	36.0	34.0	39.5	42.3
1930	25.5	24.4	34.5	33.7	40.0	41.9
1931	27.5	26.4	32.5	32.1	40.0	41.5
1932	29.0	28.2	33.0	33.3	38.0	38.5
1933	26.5	26.3	36.0	34.9	37.5	38.8
1934	25.0	24.6	37.0	35.6	38.0	39.8
1935	24.5	24.5	37.5	35.0	38.0	40.5
1936	24.5	24.5	38.0	34.4	37.5	41.1
1937	23.0	23.2	39.5	35.0	37.5	41.8
1938	24.0	24.3	36.0	33.7	40.0	43.0

<sup>1</sup>Incl. partly finished goods.

The share of crude materials is smaller in our classification than in the figures of the League of Nations, as a result of the different treatment of crude metals. This also makes for a difference in the share of finished products.

### 3. The Network of World Trade <sup>[5]</sup>.

In this publication the percentage shares of the three commodity groups of table II-3 are given by countries for the years 1928, 1935 and 1937. Table II-4 gives the comparisons for four countries.

**TABLE II-4.**  
IMPORTS OF 4 COUNTRIES BY COMMODITY GROUPS,  
PERCENTAGE DISTRIBUTION, 1928, 1935, 1937.

	Food, beverages, tobacco		Crude materials		Finished products	
	League of Nations	Our com- putations, group a	League of Nations <sup>1</sup>	Our com- putations, groups b, c	League of Nations	Our com- putations, groups d, e, f, g, h
United Kingdom <sup>2</sup>						
1928 ...	45	47	33	32	22	21
1935 ...	45	49	37	34	18	17
1937 ...	40	44	42	40	18	16
France						
1928 ...	24	25	57	59	19	16
1935 ...	30	32	53	52	17	18
1937 ...	26	27	59	58	15	15
Netherlands						
1928 ...	24	29	37	36	39	35
1935 ...	17	20	36	38	47	42
1937 ...	18	20	42	44	40	36
United States						
1928 ...	25	26	50	48	25	26
1935 ...	32	36	47	41	21	23
1937 ...	29	32	51	46	20	22

<sup>1</sup>Incl. partly finished goods.

<sup>2</sup>League of Nations figures include Ireland.

In the majority of cases, a reasonable agreement between the figures is found. Metals and metal manufactures (group g) are counted in table II-4 with crude materials, because the main part of group g consists of metals as far as industrial countries are concerned.

In the same publication, world imports in 1928, 1935 and 1937 by three commodity groups are stated. A comparison is possible by table II-5. The data differ from those of the "Review of World Trade" (table II-3).



**TABLE II-5.**  
WORLD TRADE BY COMMODITY GROUPS,  
1928, 1935 and 1937.

	Food, beverages, etc. (group a)		Crude materials (groups b, c)		Manuf. products (other groups)	
	League of Nations	Our estimates	League of Nations	Our estimates	League of Nations	Our estimates
1928	25.7	24.7	36.2	In % 33.8	38.1	41.5
1935	24.3	24.5	38.5	35.0	37.2	40.5
1937	22.8	23.2	41.0	35.0	36.2	41.8

**4. W. A. Lewis [6].**

Index numbers of world imports of primary products and the percentage shares of manufactured products as given by Lewis, were based on revised, unpublished data of F. Hilgerdt. Because of lack of information about the extent of the revisions for imports and exports separately, the index figures for primary products trade are converted to world import values with the aid of the old data, published by Hilgerdt for the year 1913, and the percentage shares of manufactures. Table II-6 gives the results of these computations, placed besides our own data.

Again, the share of manufactured products in world trade is systematically higher on the basis of our data ; "unmanufactured metals" (group g), included with manufactured products, is the responsible factor.

**TABLE II-6.**  
**WORLD IMPORTS AND THE SHARE OF MANUFACTURED**  
**PRODUCTS, 1925-1938.**

	World imports		Perc. share of manufactured products	
	W. A. Lewis	New data	W. A. Lewis	New data
	(millions of \$)		(percent.)	
1925	34.3	33.6	35.9	40.0
1926	32.7	32.6	36.8	40.1
1927	34.4	34.2	36.8	40.3
1928	35.6	35.1	38.3	41.4
1929	36.3	36.0	38.7	42.3
1930	29.6	29.4	38.8	41.9
1931	21.0	21.0	39.2	41.5
1932	14.1	14.1	36.5	38.5
1933	16.2	16.2	37.0	38.8
1934	20.4	20.4	37.6	39.8
1935	20.9	20.9	37.0	40.5
1936	22.6	22.5	36.5	41.1
1937	27.9	27.9	36.7	41.8
1938	24.0	24.4	40.1	43.0

### 5. Economic Commission for Europe.

Data on international trade are published in [1] and [7]. The figures refer to the exports of a number of Western European countries, the United States and Japan. Only for manufactured products a comparison could be made: far the largest part of these products has its origin in the industrial countries. In table II-7 comparable data are given, after addition of 10% to E.C.E. values for the margin between c.i.f. and f.o.b. valuation of imports and exports, respectively.

**TABLE II-7.**  
WORLD IMPORTS OF MANUFACTURED PRODUCTS,  
1928, 1938.

		Machinery, transport- equipment	Chemicals	Textiles	Other manuf. products <sup>1</sup>
			(millions of \$)		
1928					
E.C.E. <sup>2</sup>	...	2.609	794	3.272	2.561
Our data	...	3.002	1.292	3.926	3.128
1938					
E.C.E. <sup>3</sup>	...	2.704	789	1.617	1.880
Our data	...	2.873	1.030	1.825	2.148

<sup>1</sup>Excluding metal products.

<sup>2</sup>United Kingdom, Germany, France, Italy, Belgium/Luxemburg, Switzerland, Sweden and the United States.

<sup>3</sup>As for 1928, but including Japan and the Netherlands. The source gives values in 1948 prices, and price indices used to convert from 1938 to 1948 prices.

The most striking differences are found with chemical products. However, goods of group 55 (S.I.T.C.) are not included in the E.C.E. data for chemicals. After the Second World War this group contains about 7.5% of the total value of chemical exports. The remaining difference must be attributed to the share of Eastern Europe and Canada in world trade in chemical products.

#### 6. H. Tyszinsky [2].

The data of Tyszinsky are of the same content as those of E.C.E. but they are more detailed with respect to commodity classification. For the years 1929 and 1937 a comparison is made with the new data (table II-8).

**TABLE II-8.**  
WORLD IMPORTS OF MANUFACTURED PRODUCTS,  
1929, 1937.

	Machinery, transport equipment	Chemicals	Textiles	Other manufactured products <sup>1</sup>
		(millions of \$)		
1929				
Tyszinsky <sup>2</sup> ...	3·390	1·018	3·875	2·166
New data ...	3·345	1·361	3·804	3·287
1937				
Tyszinsky <sup>2</sup> ...	2·825	894	2·174	1·473
New data ...	2·866	1·183	2·249	2·433

<sup>1</sup>Excluding metal products.

<sup>2</sup>Exports of the United Kingdom, Germany, France, Belgium, Italy, Switzerland, Sweden, the United States, Canada, Japan and India, corrected for difference between c.i.f. and f.o.b. values (+ 10%).

The group "machinery and transport equipment" was defined by Tyszinsky in a somewhat wider sense than in our classification. For chemicals the difference has to be explained in the same way as above with the E.C.E. data. The group "other manufactured products" shows a large gap between the two estimates, which must remain largely unexplained. Tyszinsky's estimates in this group are consistently lower than those of E.C.E.

7. International Trade 1957-1958 <sup>[3]</sup>.

The classification used by the G.A.T.T. in its recent yearbook is based on the S.I.T.C. The regrouping however is of such a kind, that only the totals and a two-groups-division can be compared. This has been done in table II-9.

**TABLE II-9.**  
WORLD TRADE BY TWO COMMODITY GROUPS,  
1953-1957.

	1953	1954	1955	1956	1957
	(billions of dollars)				
<i>S.I.T.C. 0-4 :</i>					
G.A.T.T. <sup>1</sup> ...	37.5	39.1	42.1	45.8	48.5
New data ...	37.8	39.7	44.4	47.8	52.4
<i>S.I.T.C. 5-9 :</i>					
G.A.T.T. <sup>1</sup> ...	33.9	36.6	41.9	47.5	52.0
New data ...	38.8	40.0	44.7	48.4	55.4
<i>Total trade</i>					
G.A.T.T. ...	71.4	75.7	84.0	93.3	100.5
New data ...	76.5	79.7	89.1	96.2	107.7

<sup>1</sup>In contrast to the new data, G.A.T.T. figures are valued f.o.b.

In most of the cases, differences are the result of c.i.f. versus f.o.b. valuation. Only for 1953 and 1954, S.I.T.C. sections 0-4, the difference is too small.



## APPENDIX III.

## SOURCES AND METHODS.

## 1. Netherlands.

Source : "60 Jaren statistiek in tijdreeksen," C.B.S., The Hague, 1959, p. 75.

Imports according to the sections of the S.I.T.C. Only for groups i (textiles) and g (metals and metal manufactures), original trade statistics (list D) were used.

## ALLOCATION OF NETHERLANDS IMPORT STATISTICS.

	Numbers of D-list.
f	98-102
g	61-69 (excl. 67), 127, 132

## 2. Belgium and Luxemburg.

Source : "Annuaire Statistique du Royaume de Belgique." Classification of imports by stages of production in 4 main groups.

## ALLOCATION OF B.L.E.U. IMPORT STATISTICS.

	B.L.E.U. trade statistics.
a	I, II, tabac (from III).
b	all groups from III, excl. those named under our groups a, c, g and h.
c	from III : combustibles minéraux, lubrifiants, etc.
d	from IV : produits chimiques, matières colorantes.
e	From IV : machines électriques et non-électriques, matériel de transport.
f	from IV : produits textiles, vêtements.
g	from III : cuivre, fer et acier, plomb, zinc. from IV : articles manufacturés en métaux, armes, munitions.
h	from III : pierres gemmes; remaining groups of IV.

**TABLE III-1.**  
COMPARISON B.L.E.U. 1952.

	S.I.T.C.	Belgian class.
	(millions of \$)	
a	503	471
b	618	672
c	230	228
d	106	65
e	372	342
f	103	65
g	328	264
h	180	336
total	2·439	2·446

### 3. (Western) Germany.

Source : Statistisches Jahrbuch für das Deutsche Reich. Classification (without numbering) by stages of fabrication. In 1935 the classification was somewhat modified, afterwards giving a better specification of crude materials and semi-finished products.

#### ALLOCATION OF GERMAN IMPORT TRADE STATISTICS <sup>1</sup>

	German import statistics after 1935.
a	Ernährungswirtschaft, total.
b	Rohstoffe excl. groups under c.
c	Kohle/Teer, Koks/Kraftstoffe und Schmieröle.
d	Teerdestillationserzeugnisse/Sonstige chemische Halbware ; Chemisch hergestellte Kunststoffe/Sonstige chemische Vorerzeugnisse ; Photochemische Erzeugnisse/Sonstige chemische Erzeugnisse.
e	Werkzeugmaschinen/Elektrotechnische Erzeugnisse.
f	Rohseide und Seidengespinste/Gespinnste aus Flachs usw. ; Gewebe und Gewirke ; Strick- und Wirkware/Pelzware.
g	Messerschmiedware/Sonstige Ware aus unedlen Metallen ; Gussröhren/Stangen, Bleche, usw.
h	all other manufactures.

<sup>1</sup>Source : Statistisches Jahrbuch 1938, table VII, 9.

It was not possible to make an acceptable classification of the metals-group. In the allocation table the group is wholly included with (b), though partly belonging to group (g). This is clearly stated by the comparison-table for 1952.

**TABLE III-2.**  
COMPARISON 1952, WESTERN GERMANY.

	German classification.	S.I.T.C.
	(millions of \$)	
a	1·444	1·382
b	1·511	1·288
c	336	341
d	56	88
e	123	123
f	164	162
g	123	316
h	101	114
total	3·858	3·814

#### 4. United Kingdom.

Source : The Trade of the United Kingdom, Volume I. The classification in 5 sections by stages of fabrication was used as a starting point for "retained imported merchandise."

#### ALLOCATION OF BRITISH IMPORT STATISTICS.<sup>1</sup>

	British statistics.
a	I total, II J excl. crude petroleum.
b	II total, excl. II A, II J
c	II A, crude petr. (from II/I), III A ; refined petr. (from III P).
d	III O, III P excl. petroleum.
e	III F, G and S.
f	III I/M.
g	III C/E, excl. scientific instruments, watches (from III E).
h	III other groups, IV, V.

<sup>1</sup>The table refers to the year 1938 : minor modifications of the British classification for other years result in changes of the allocation.

TABLE III-3.  
COMPARISON 1952, UNITED KINGDOM.

	British classification.	S.I.T.C.
	(millions of \$)	
a	3·794	3·531
b	2·519	2·724
c	939	946
d	133	202
e	387	388
f	239	237
g	915	916
h	413	389
total	9·339	9·333

### 5. France.

Source : Annuaire Statistique de la France, 3e partie, F, Tableau XII :  
Marchandises importées—Poids et valeurs (commerce spécial).

#### ALLOCATION OF FRENCH IMPORT STATISTICS.

	French classification.
a	Objets d'alimentation (total), chevaux, mules, mulets, etc., cire animale, jaunes d'oeufs, graisses de poisson, roque de morue, fruits destinées à la distillerie, tabacs en feuilles, huiles fixes pures, cire végétale, houblon et lupuline, betteraves fourrages et son, tourteaux et drèches, produits et déchets végétaux, tabacs fabriqués.
b	Matières nécessaires à l'industrie excl. the groups under a, c, d, g and h.
c	Houille crue/huiles lourdes, courant électrique (from 1933 onwards).
d	Huiles volatiles, opium, espèces médicinales, teintures et tannins, goudron minéral/paraffine et vaseline, nitrate de soude, teintures préparés, sulfate d'ammoniaque/allumettes.
e	Machines motrices/embarcations, excl. ouvrages en métaux.
f	Fils de lin/lingerie.
g	Aluminium/bismuth, argent battu, or et platines battus, perles fines, pierres gemmes, ouvrages en métaux, orfèvreries et byouterie d'or etc., byouterie fausse.
h	all other groups from objets fabriqueés, matériaux (from mat. nécessaires).

The classification that was used is only available for pre-war years. Comparison with S.I.T.C.-data for 1952 is therefore not possible. The French trade returns give a total import value in 1925 of Fr. 44.095 million, but in table I of the statistics on foreign trade a total of Fr. 44.553 million is mentioned. The latter value is also used by Sennilsson, p. 312, table A 73 <sup>[1]</sup>. Only the division in 3 main groups is known from this value. The difference between the two totals is distributed as follows :

- food, beverages : the total of "objets d'alimentation" from table I has been taken.
- crude materials : calculated as the remainder from the total of "matières nécessaires" in table I.
- other manufactures : calculated as the remainder from the total of "objets fabriqués."

## 6. Italy.

Source : Annuario Statistico Italiano.

### ALLOCATION OF ITALIAN IMPORT STATISTICS.

	Italian classification.
a	animali vivi ; carmi, brodi ; latte e prodotti ; prodotti della pesca ; coloniali ; cereali, legumi ; ortaggi e frutta, bevande ; sale e tabaccoli ; oli e grassi, animali etc.
b	senni e frutti oleori ; canapa, lino etc. ; cotone ; lana, crino e peli ; seta ; minerali metallici ; legni e sughero ; pagli ed altre materie ; materie da intaglio.
c	oli minerali, di resina.
d	oli essenziale ; prodotti chimici inorg. ; concini chimici ; prodotti chimici org. ; generi medicinale ; generi tinta etc.
e	macchine e apparachi ; utensili strumenti ; veicoli.
f	fibre artificiali ; vestimenti, biancheria.
g	ghisa, ferro e acciaio ; rame e sue leghe, altri metalli comuni ; lavori diversie di metalli ; armi e munizioni ; pietre preziose ; argento, platino.
h	strumenti scientifici ; pietre, terre e minerali ; laterizi e materiale cementizio ; prodotti della industria cementizio ; vetri e cristalli ; amianto, grafite e mica ; pelli e pellice ; gomma elastica e guttapercha ; carta, cartoni e prodotti ; strumenti musicali ; oggetti di moda, calzature ; merceria, balocchi ; materie vegetali non compresi ; materie animale non compresi ; prodotti diversi.



**TABLE III-4.**  
COMPARISON 1952, ITALY.

	Italian classification.	S.I.T.C.
	(millions of \$)	
a	619	447
b	455	749
c	452	444
d	90	87
e	276	245
f	32	31
g	182	209
h	288	101
total	2-394	2-313

## 7. Norway.

Source : Norges handel (yearbook), classification in 25 groups. Figures added in the allocation table are indicating subgroups.

### ALLOCATION OF NORWEGIAN IMPORT STATISTICS.

	Norwegian classification.
a	1/7, 13-1, 13-3, 13-4.
b	8, 11, 13-7, 15, 18-1, 19, 20 (excl. 20-4).
c	13-2, 13-5, 20-4.
d	13-6, 17, 21-5, 21-6, 21-7.
e	24 (excl. 24-4 and 24-5).
f	9, 10.
g	22, 23
h	12, 14, 16, 18-2, 18-3, 21-1/21-4, 24-4, 24-5, 25.

**TABLE III-5.**  
**COMPARISON 1952, NORWAY.**

	Norwegian classification.	S.I.T.C.
	(millions of \$)	
a	123	129
b	116	94
c	89	86
d	20	33
e	247	246
f	93	94
g	147	143
h	41	48
total	874	872

#### 8. Sweden.

Source : Statistisk Arbok for Sverige, classification in 25 groups (till to 1929), for later years in 20 groups.

#### ALLOCATION OF SWEDISH IMPORT STATISTICS.

	1923-1929	1930-1938
a	1/6 + feeding stuff for animals (from 17) + oils and fats (from 12)	1, II (excl. II A), III, IV.
b	7, 10, 14, 15a, 17 (excl. oils, fats and chemicals), 20a (excl. mineral fuels) + pulp (from 18).	II A, V A, VII A, IX, XI A + pulp (from X).
c	mineral oils (from 12), fuels (from 20a).	V B.
d	16, 20b, chemicals (from 12), medicinal products (from 25), soap (from 13).	VI.
e	24 (excl. instruments and watches).	XVI, XVII, XVIII A.
f	8, 9.	XI (excl. XI A), XII.
g	22, 23.	XVI, XV, XIX.
h	11, 13 (excl. soap), 15b, 18 (excl. pulp), 19, 21, instruments and watches (from 24), 25 (excl. medicinal preparations).	VII (excl. VII A), VIII, X (excl. pulp), XIII, XVIII B, XVIII C, XX.

**TABLE III-6.**  
COMPARISON 1952, SWEDEN.

	Swedish classification.	S.I.T.C.
	(millions of \$)	
a	283	275
b	155	196
c	338	331
d	93	89
e	340	319
f	126	124
g	295	285
h	99	115
total	1 729	1 732

#### 9. United States.

Source : Statistical Abstract of the United States, before 1934 general imports, other years imports for consumption ; classification in 11 groups. Subgroups are given in the allocation table by capital type.

#### ALLOCATION OF U.S. IMPORT STATISTICS.

	U.S. classification.
a	00, O-E, 1, 2-E, 2-I.
b	O-A, O-F, 2 (excl. 2-E and 2-I and rubber manufactures), 3 (excl. 3-A, 3-F, 3-I, 3-L, 3-M), 4-A, 4-B, 4-E, 5-G, 6-A, 6-E.
c	5-A, 5-B.
d	8.
e	7.
f	3-A, 3-F, 3-I, 3-L, 3-M.
g	5-F, 6 (excl. 6-A and 6-E).
h	rubber manufactures (from 2), O-B, O-C, O-D, 4-C, 4-D, 4-F, 5-C, 5-D, 5-E, 9.

**TABLE III-7.**  
**COMPARISON 1952, UNITED STATES.**  
 (import values f.o.b.)

	U.S. classification.	S.I.T.C.
	(millions of \$)	
a	3·341	3·354
b	2·581	3·080
c	699	702
d	244	326
e	354	359
f	503	408
g	1·817	1·433
h	1·208	1·083
total	10·747	10·745

The pre-war trade figures (imports f.o.b.) have been corrected for c.i.f.-f.o.b. margin by adding 10% to the values given in the trade returns. From 1952 onwards c.i.f. values are known for general imports (International Financial Statistics, I.M.F., Aug., 1959, p. 17). A correction was made for the difference between "general imports" and "imports for consumption."

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#### BOOKS AND ARTICLES USED.

- [<sup>1</sup>] I. Sennilsson, *Growth and Stagnation of the European Economy*, Economic Commission for Europe, Geneva, 1954.
- [<sup>2</sup>] *Commodity Trade Statistics*, Jan.-Dec. 1957, New York, 1958.
- [<sup>3</sup>] *Review of World Trade 1938*, League of Nations, Geneva, 1939.
- [<sup>4</sup>] F. Hilgerdt, *Industrialization and Foreign Trade*, League of Nations, Geneva, 1954.
- [<sup>5</sup>] *The Network of World Trade*, League of Nations, Geneva, 1942.
- [<sup>6</sup>] W. A. Lewis, *World Production, Prices and Trade 1870-1960*, *The Manchester School of Economic and Social Studies*, May, 1952, p. 105-138.
- [<sup>7</sup>] *Economic Survey of Europe since the War*, Economic Commission for Europe, U.N., Geneva, 1950.
- [<sup>8</sup>] H. Tyszinsky, *World Trade in Manufactured Commodities 1899-1950*, *The Manchester School of Economic and Social Studies*, Sept. 1951, p. 272-304.
- [<sup>9</sup>] *International Trade 1957-1958*, G.A.T.T. Geneva, July 1959.
- [<sup>10</sup>] *International Financial Statistics* (International Monetary Fund), August 1959, p. 17.
- [<sup>11</sup>] S. Spiegelglas, *World Exports of Manufactures, 1956 vs. 1937*, *The Manchester School of Economic and Social Studies*, May 1959, p. 111-139.
- [<sup>12</sup>] F. H. Awad, *The Structure of World Export Trade 1926-1953*, *Yorkshire Bulletin of Economic and Social Research*, July 1959, p. 19.

# The Growth of Trade Unionism in Banking, 1914-1927<sup>1</sup>

This paper is concerned with a period during which trade unionism in banking first appeared, spread and then declined. It shows why trade unionism occurred at all in banking ; why it occurred when it did, and reveals the factors which influenced the collective behaviour of bank workers. It enables us to compare, in general terms, the union activities of different groups of non-manual workers.

Banking conditions, before 1914, encouraged a belief in economic individualism. There were very few bank salary scales which provided for automatic increases after clerks had reached the age of 30 years. A clerk after that age who wanted to increase his remuneration, depended either on promotion or on obtaining a bonus for extra responsibility. Both promotion and bonus were controlled or strongly influenced by branch managers. Thus the future of a bank clerk largely depended upon his creating and maintaining a favourable personal relationship with his manager, or, if the bank were small, with his employer.

The bank employers consciously tried to create an aura of exclusiveness around bank employment. They recruited their staffs mainly from the public schools on personal recommendations and gave preference to the sons of professional men. As there were usually waiting lists for posts, the banks were able to choose their staffs with discrimination.

Bank workers regarded themselves as the aristocrats of clerks. They had no contact in their work with manual workers or even with other clerks. In their local communities they often enjoyed a status comparable to that accorded to professional men and they maintained a standard of living which enabled them to give the necessary appearance of privilege to that status.

<sup>1</sup>We wish to thank the officials of the National Union of Bank Employees for permission to consult material in their files. This paper is concerned only with the trade union activities of bank clerks in England and Wales. In Scotland and Ireland quite distinct activities took place.



THE FORMATION OF THE BANK OFFICERS' GUILD.<sup>1</sup>

The first attempt to form a union was made in 1914. Appeals for support appeared in the London and provincial press and in 1915 a National Association of Bank Clerks was registered. Support for the union was slight and it ceased to function in the same year. Then the working conditions of bank workers began to show a marked deterioration. The younger clerks joined the armed services and bank recruitment was suspended. A greater volume of work and increased responsibility had to be borne by the remaining clerks, without either an increase in pay or an improvement in status. At the same time Britain experienced a spell of inflation against which bank clerks had no protection. While organised workers succeeded in obtaining wage increases to counteract rapid price rises, bank clerks were given inadequate war bonuses at the discretion of the banks.<sup>2</sup>

The war speeded up the process of concentration in banking control. Private banks were absorbed by joint stock banks and joint stock banks amalgamated with each other. Between 1891 and 1918 the number of private banks decreased from 37 to 6.<sup>3</sup> The number of joint stock banks in England and Wales fell from 43 in 1913 to 26 in 1918 while the total number of branches increased from 5,797 to 6,501.<sup>4</sup> The degree of concentration was greater than these figures indicate because the branches were concentrated in a small number of large banks and some banks had controlling interests in others. Even in 1909 about five banks had done half of the banking business.<sup>5</sup> The banks had become much more impersonal places in which to work. The determination of such matters as promotion policy and salary scales had moved into the hands of people with whom

<sup>1</sup>See *The Blackcoated Worker* by David Lockwood, pp. 176-184, for a brief history of trade unionism in Banking.

<sup>2</sup>War bonuses of about 20 per cent. were handed out by some banks at the end of the war (see *The Bank Officer*, October and November, 1919). Prices rose by 220 per cent. during the war period, while weekly wage rates increased by 179 per cent. (*Aspects of British Economic History*, by A. C. Pigou, p. 230).

<sup>3</sup>*Managing the People's Money* by J. E. Goodbar, p. 306.

<sup>4</sup>*Memorandum on Commercial Banks, 1913-1929*; League of Nations (1931), p. 280 *et seq.*

<sup>5</sup>Goodbar, *op. cit.*, p. 304.

the ordinary clerk had no contact and on whom, in any case, he could make no impression with his individual demands.

A second attempt to form a union was made when a group of bank clerks who had been concerned with the first venture met in Sheffield in December, 1917. They appointed a provisional committee to work out a scheme and inserted notices in provincial daily newspapers. To inquirers they sent an explanatory letter making it clear that they intended to establish a conciliatory guild and not a militant trade union. They had a favourable response. Branches were formed in various provincial cities and in August, 1918 a London branch was set up to which the head office was transferred from Sheffield about two months later.

The Guild grew relatively slowly until bank clerks in the armed forces had been demobilised. These men had been through new and revealing social experiences. They had mixed with members of all social classes and had exchanged ideas with them. When they returned to bank employment they were prepared to recognise collective action as a socially legitimate and necessary means of redressing their grievances. They joined the Bank Officers' Guild.

At Easter, 1919, the first national conference of branch representatives was held to elect officials, a provisional national committee, and to consider a proposed constitution. A mass meeting was held in London in May, 1919, at which a bank clerks' charter was outlined. The first issue of the Guild's journal, "The Bank Officer," appeared in August, 1919, and in October about 100 delegates met at the first annual general meeting of the Bank Officers' Guild. At this meeting various decisions concerned with the establishment of an organization were taken, including one to register the Guild as a trade union. The enthusiasm for the Guild was expressed in its rapidly increasing membership. In October, 1919, the membership was estimated to be 10,000. By December, 1920, the Guild had organized 27,000 of the 60,000 bank clerks in the country.

#### THE ORGANIZATION OF THE GUILD.

The Guild catered for any member of the clerical or managerial staff whether employed or retired with a pension, of any bank or trustee savings bank with an office in the

United Kingdom.<sup>1</sup> There were many discussions about whether it should include women, temporary staff and messengers. It was generally agreed that all the clerical staff should be organized but there was confusion about this in practice. Many of the temporary staff were women and some branches excluded them from membership. There was strong resistance to having messengers in the Guild. It was maintained that if they were allowed to join, the prestige of the Guild would be lowered in the eyes of the bank directors.<sup>2</sup> Even though the National Provincial Bank put messengers on a salary scale and Barclays Bank included them in a bonus system, the bank clerks maintained that they had nothing in common with them and excluded them from membership.<sup>3</sup>

Two full-time officials, a president and general secretary, were elected in October, 1919.<sup>4</sup> The annual general meeting was designated the supreme policy-making body of the Guild. It consisted of elected delegates and any ordinary member of the Guild provided he paid his own expenses and gave notice of his attendance. Certain officials were allowed to attend *ex officio*. The executive committee attended but had no voting power. The administration of the Guild was put in the hands of the executive committee which had the power to interpret the rules and to call for the opinion of the branches or members on any issues, though it was not bound to accept that opinion.<sup>5</sup>

The number of branches increased from 17 in August, 1919 to 190 in 1922. The extra work which this expansion entailed caused the Guild to appoint two full-time organizing secretaries in 1921. The general fund of the Guild grew from £4,000 in 1919 to almost £10,000 at the end of 1920. The Guild was clearly established by that time. It was national in scope and was well equipped to negotiate on behalf of bank clerks.

#### EMPLOYERS' REACTIONS.

The bank employers responded quickly and firmly to the formation of the Bank Officers' Guild. They did nothing which

<sup>1</sup>In fact its activities were confined to England and Wales.

<sup>2</sup>President of the Guild at the first annual meeting, April, 1919.

<sup>3</sup>Messengers were not admitted to the Guild until 1941.

<sup>4</sup>Frank Clegg became president and J. R. Hannan became general secretary.

<sup>5</sup>Bank Officers' Guild Rules, 1922.

was likely to intimidate or antagonize bank clerks to the extent of uniting them against their employers. The Guild was not proscribed, nor were its members victimized openly. The employers simply consistently refused to recognize the Guild and set up their own associations through which they could channel concessions after a semblance of consultation with staff representatives.

Various methods were used to establish these associations. In November, 1918, the first intimation that consultation with the staff about working conditions was either necessary or desirable was given when Lloyds Bank established a Staff Representation Committee. The Committee was without a constitution until 1921. On 23rd December, 1918, the staff of the National Provincial and Union Bank met and elected a provisional committee to consider a proposal to form a guild. The committee presented a detailed and convincing case against an internal association and concluded that apart from sentimental reasons it could see no advantage in having a guild composed exclusively of members of its own bank. It recommended that the Bank Officers' Guild should be strongly supported. Nonetheless an internal association was formed in 1919.

During February, 1919, both the London City and Midland Bank and the Westminster Bank took steps to form internal associations. The chairmen and general managers of the London City and Midland Bank invited 36 branch managers to London to consider questions relating to the staff. The branch managers recommended to the Board of Directors that a salary increase of 20 per cent. should be given to all the staff, that holidays should be extended and that pensions should be improved. A circular letter was sent to all branch managers on 4th February, 1919, informing them of these recommendations and that it had been "decided to take immediate steps to form an Internal Staff Association . . ." Each branch manager was asked to send a list of the members of his staff (including himself), indicating by an asterisk those who were willing to become members of the Association. On 5th February, the directors of the Westminster Bank called a meeting to hear an



explanation of the principle of an internal association.<sup>1</sup> The general secretary of the Bank Officers' Guild was present but he had little influence. The meeting did as the directors advised.

With the establishment of internal associations in Barclays and Martins Banks in 1921 all the big joint stock banks had their own associations. In 1923 a central committee was formed to co-ordinate the activities of the internal associations.

The composition and methods of these associations showed slight variations. In Lloyds Bank, membership of the Staff Representation Committee was automatic for all members of the permanent and supplementary staff and they paid no subscriptions. Representatives were elected for a three-yearly period at a general election throughout the Bank and at each election managers and departmental principals were asked to give all possible assistance. The general secretary of the association was appointed by the directors and only they had power to remove him. In the London City and Midland Bank the membership consisted of "as many members of the permanent and temporary clerical staff as may be willing to join . . .".<sup>2</sup> Women were not eligible for membership and a nominal annual subscription was paid. Local committees "selected from and appointed by the Staff of the Bank in the respective districts . . ." were established in 21 towns.

The bank employers rarely said that the internal associations were established to weaken trade unionism. They justified their actions by stating that banking was an individualist and exceptional occupation. One of the reasons given for the formation of the Midland Bank internal association was that the branch managers did not "consider it right that any persons other than our own officers should interfere in the affairs of this Bank."<sup>3</sup> Soon after its formation in 1920 the British Bankers' Association on which all the big joint stock banks were represented stated that a method of direct communication between the directors of each bank and its staff by means of an internal association elected by the staff, was the best basis for solving the problems of banks. The Association added that brains and ability, not

<sup>1</sup>*County Westminster and Parr's Magazine*, March, 1919.

<sup>2</sup>Circular letter, 4th February, 1919.

<sup>3</sup>*Ibid.*



strength of limb, were the measure of efficiency and that promotion should be made on merit through the management of each branch, without external interference.<sup>1</sup>

#### THE AIMS AND METHODS OF THE GUILD.

There is an obvious correlation between the determination of employers to oppose trade unionism and the methods needed to obtain recognition from them. The stronger the employers' opposition the greater is the need for militant action. This correlation evaded the majority of the members of the Bank Officers' Guild so that at no time did the Guild adequately match its policy with that of the bank employers.

It was the broad aim of the Guild to improve the conditions and protect the interests of its members ; to settle disputes between employers and members ; to assist the unemployed ; to give assistance to other guilds or trade unions and to amalgamate with other organisations of a kindred nature. It had a general aim to promote and guard the interests of the banking profession.

The first main task of the Guild was to obtain recognition as a negotiating body. Bank employers could either be persuaded or forced to accede recognition. Persuasion involved convincing the employers that the Guild was beneficial to banking and would not harm the employers' interests. Force entailed the ability to withdraw labour from the banks on a scale sufficient to disrupt their operation. For both methods it was necessary for the Guild to organize a majority of all bank clerks.

The organizers of the Guild believed that bank clerks would not accept the collective standards of manual workers : that they would not be aggressive in their methods. From the beginning they therefore tried to establish a form of collective action which did not unduly violate their social values. The president of the Guild reflected their intention in 1919 when he said : "We want to find not a basis of antagonism, but . . . a basis of co-operation." <sup>2</sup> He added that if any of the Guild's "proposals are proved to be unreasonable or unjust, it would

<sup>1</sup>Letter to Frank Clegg, president of the Guild, from R. Holland Martin, chairman of the British Bankers' Association, 16th June, 1920.

<sup>2</sup>Meeting of representatives from branches, April, 1919.

certainly waive its claim to them . . . The Guild is seeking a basis of co-operation . . . Hostility to the Banking Directorates is not in the minds of the leaders of the Guild movement . . . ”

The only effective standard of collective action which the Guild organizers knew about, however, was that of the manual workers' unions. In many industries unions had achieved recognition through the use of the strike weapon ; through an aggressive, sometimes painful, defiance of the power of employers. The first year of the Guild's existence, 1919, was characterised by strikes and threats of strikes from the most powerful unions of the country. In this atmosphere bank clerks found it difficult to isolate their thoughts and proposals from known trade union methods. They inevitably became confused and contradictory in their statements and advice.

(i) *Strike Action.*

A clause to give the Guild the authority to call a strike was included in the draft constitution and was accepted. It gave the executive committee the power to declare a strike, but only after a ballot had been held showing that five-eighths of the total membership were in favour of it.<sup>1</sup> The clause was the subject of much discussion at the initial conference. One delegate from Liverpool thought that the Guild was being based on “Rules and regulations which are adaptable to coal-heavers, and not to intelligent men.”<sup>2</sup> Others opposed its inclusion on principle but the majority felt it was desirable to have their power to withhold labour stated explicitly because it might assist them in negotiations with the bank employers. The chairman, who was in favour of the clause, added that he would fight against it being used.<sup>3</sup> Opposition to the clause continued in subsequent years but it remained in the rule book. Its use was never contemplated.

The equivocal attitude of the Guild members to strike action came out more clearly in a discussion about another constitutional clause. One of the stated aims of the Guild was “to protect the Banks and the Members hereof against any strikes or disputes between the Guild employers, and employees

<sup>1</sup>Rules 1922, section 2.

<sup>2</sup>Minutes of the first General Meeting, April, 1919.

<sup>3</sup>*Ibid.*

in any trade." The clause, the Guild's solicitor stated, was a covering clause which might be useful. "You might," he said, "be able to squash any strike by striking yourselves."<sup>1</sup> A delegate elaborated on this by saying "if everybody else went on strike we might go on strike ourselves to bring them to their senses in combination with the Banks." His intention was to make it impossible for strike benefit to be paid. The attitude that bank clerks ought to be able to compel settlements in other disputes persisted. It occurred to few bank clerks that their intentions were contrary to trade union ethics.<sup>2</sup> This clause was not used either.

This conception of collective action stemmed from the view which bank workers held of themselves as a social élite. They regarded manual workers in much the same way as nineteenth-century craftsmen looked at unskilled workers. When, for instance, the merits of a rule about assisting other guilds or unions was discussed in 1919 it was argued that it might be necessary for middle-class organizations to take collective action against the working class which frightened the community and threatened a breakdown in society.<sup>3</sup>

(ii) *Collective Bargaining.*

The Guild was in a difficult position. It had refused to use the strike weapon as a rallying force and recruiting medium. It therefore had to reason with unorganized bank clerks and show them that collective action produced material results. This entailed obtaining concessions from the bank employers. But this could only be done obviously and systematically through established negotiating procedures.

The Guild made a number of attempts to establish negotiating machinery. An official of the Ministry of Labour attended a meeting of London bank clerks in May, 1919, to explain the Whitley system and its application to the banking industry. The meeting recommended that the Government should be approached to establish a Whitley Council and the

<sup>1</sup>*Ibid.*

<sup>2</sup>A few delegates at the Annual General Meeting in October, 1919, did protest that they should not have the power to act against strikes or interfere in other disputes or dictate to trade unions.

<sup>3</sup>General Meeting, April, 1919.

Minister of Labour and the chairman and secretaries of various banks were informed of the recommendation. The Minister of Labour gave his approval but the replies from the banks were mixed: some cordial, some noncommittal and some hostile. No replies were received from the Midland, Westminster and National Provincial and Union Banks.<sup>1</sup> From the chairmen of Lloyds and Barclays Banks came polite rebuttals. But the Guild, even on this matter, was prepared to be slow-moving. "The idea of the application of the scheme to the profession," it stated, "is so entirely novel, as also is the fact of bankmen combining into one association to realise their ideals, that the process will necessarily be slow."<sup>2</sup>

The national executive of the Guild produced a national programme, after the annual general meeting in October, 1919, which dealt with salaries, bonuses, employment of women, overtime, balance dates, holidays, pensions, widows and orphans and education. It suggested also that a Whitley Council for the banking industry should be established and a number of prominent people commented favourably about it.<sup>3</sup> The programme was intended as a basis for negotiations. The *Daily Express* gave it some prominence. "We hope," it stated, "that officials of the Guild will also take care that it reaches the hands of all bank directors. It is so moderate and has so little of the Bolshevik touch about it that it should bring considerable relief into boardrooms, from which the progress of the Guild has been watched with some trepidation. If there are points in the programme which, in the directors' view, need further consideration, the proposed formation of a Whitley Council provides an admirable field for discussion."<sup>4</sup> The bank employers made no concessions to the Guild. Yet when the 1920 annual general meeting of the Guild discussed its inability to make any impression on the bank employers it rejected the suggestion that all the bank staffs should be balloted on whether or not they wanted a Whitley Council.

<sup>1</sup>*The Bank Officer*, September, 1919.

<sup>2</sup>*Ibid.*

<sup>3</sup>Some of these were Cardinal Bourne, Lord Robert Cecil, Lord Cavendish Bentinck, T. P. O'Connor and Mr. J. H. Whitley.

<sup>4</sup>19th December, 1919.



The Minister of Labour was asked in December, 1920, to proceed with the establishment of a Council but he could do nothing without the approval of the bank directors. Finally the Guild dropped the suggestion from its policy, ostensibly because it wanted negotiating machinery with recourse to arbitration and felt that a Whitley Council would not help to achieve this end.

The Bank Officers' Guild was faced with the problem of handling the internal associations. In 1919 it had rejected an offer from the provisional committee of the Westminster internal association to affiliate to the Guild whilst retaining control of its own members. Until 1923 it doubtfully pursued a policy of permeation. When Barclays Bank formed an internal association in 1921, 27 out of 28 members of its executive committee were members of the Bank Officers' Guild. Other internal associations were treated similarly. This course was aimed at directing the policy of the associations to coincide with that of the Guild. But it was bound to end in failure for the associations had no policy which they could claim as their own. They were instruments of the management and were used largely to express management wishes. The Guild faced another difficulty. Once its members sat on committees of the associations they saw the promotion possibilities which would be opened up to them if they left the Guild. They were continually confronted by a temptation which tended to neutralize their initial purpose.

The internal associations caused the Guild most worry during 1921, the first year in which they were all active. They rejected a proposal by the Guild to convene a joint conference ; they refused to co-operate with the Guild over the introduction of an unemployment insurance scheme. A clause in the Unemployment Insurance Act, 1920, permitted an industry to contract out of the national scheme provided a special one, drawn up by representatives of employers and workers, was approved by the Minister of Labour. The Bank Officers' Guild wanted a scheme to be introduced which was appropriate to the banking industry. The British Bankers' Association also



refused to co-operate because it considered that co-operation would be tantamount to recognition.<sup>1</sup>

The membership of the Guild reached its peak in December, 1922, when, with 30,173 members, it organized about 50 per cent. of the clerical and managerial bank employees in England and Wales. But it was further away from recognition than at almost any time since its formation. It could do nothing, it seemed, to displace the internal associations. At the 1923 conference a resolution was passed calling upon all members of the Guild to sever their connections with internal associations. Thereafter a policy of non-co-operation was pursued. The issue, however, was not settled. In 1924 and 1925 attempts were made to persuade the Guild to re-adopt the policy of permeation. The attempts failed because so many Guild members had witnessed the futility of that policy. The Guild hardened its attitude and decided in 1924 that no voluntary member of an internal association could hold office in the Guild.

At every move it was disarmed by its own estimate of the conservatism of bank clerks. There was a request at the Guild's delegate conference in 1922 for a petition in favour of recognition to be organized and presented to the British Bankers' Association. The conference turned the request down mainly because it believed that bank clerks would not sign a petition. The dominant opinion at the conference was that there were many bank clerks, even members of the Guild, who were afraid of putting their names down on a piece of paper in case anybody should see it.<sup>2</sup> It was decided instead to approach the British Bankers' Association for recognition, and if refused, to ask for its reasons. In 1924 the Guild would not even ask the

<sup>1</sup>The British Bankers' Association submitted a scheme which was not accepted by the Minister of Labour because by not being jointly drawn up by representatives of workers and employers it did not conform with the Act. Eventually, after a long-drawn out controversy, a scheme which had been submitted to a few internal associations was submitted to a ballot of bank employees. The Bank Officers' Guild advised its members to support the scheme to avoid further delay and it was endorsed by 53,267 votes to 1,268. An unemployment insurance scheme for the banking industry was approved by the Ministry of Labour in June, 1924. Representatives of the Bank Officers' Guild were elected to the Banking Unemployment Insurance Board which was then set up.

<sup>2</sup>Minutes of the Annual General Meeting, 1922.

Association to conduct a secret ballot among bank staffs to determine whether the Guild should be given recognition.

(iii) *Political Action.*

The need for political action was raised seriously in 1923. The Guild did not have a political fund so it could not finance political activities, but some of its members felt that their interests should be represented in Parliament. In 1923 there were 19 bank directors in the House of Commons and others in the House of Lords. The members of the Guild did not make it clear what they thought could be achieved by political representation. The matter seemed to have been raised more out of despair than as a serious attempt to tackle a problem.

A motion at the delegate conference of the Guild in 1922 that bank clerks should adopt a political policy in combination with other professional groups but without allying themselves with any one political party, did not even produce a seconder. Various bodies, including the National Federation of Professional Workers, had approached the Guild to join with them in seeking parliamentary representation but the Guild had not responded. Even its executive could not reach agreement over the matter.<sup>1</sup> Then in 1923 the delegate conference, by 22,351 votes to 5,707, agreed "that parliamentary action should be taken by putting forward our own candidates in conjunction with other professional workers." The delegates had obviously been encouraged by the House of Commons debate on 18th April, 1923, when a motion calling for the recognition by employers of professional workers' organizations and for the establishment of collective bargaining machinery for them, had been passed on a free vote.<sup>2</sup> Bank clerks had been mentioned frequently in the debate and only bank directors had spoken against giving the Guild recognition. Another possible reason for the Guild's change of mind may have been the decision of the National Provincial Bank to reintroduce a clause forbidding bank clerks to participate in the activities of political parties.<sup>3</sup>

<sup>1</sup>Minutes of Annual General Meeting, 1923.

<sup>2</sup>See Hansard, Vol. 162, col. 2162 *et seq.*, 18th April, 1923.

<sup>3</sup>The Guild protested and drew attention to the clause through the Press but the bank did not withdraw it until November, 1924.

The feeling at the 1923 conference was that the Guild should avoid a party political affiliation but the leaders of the Guild realised that this was a difficult condition to meet. The Guild could not finance an independent candidate and in any case the chances of such a candidate being elected were remote. So the executive proposed in 1924 that an attempt should be made to get a candidate from each of the main political parties to represent the interests of the Guild in Parliament. This was agreed and a special committee was appointed to explore the ground. The matter was resolved in 1925 when three existing Members of Parliament, one from each main political party, agreed to act as representatives of the Bank Officers' Guild.<sup>1</sup> Political representation, however, made no impression on the banks. They ignored it as they had ignored the resolution of the House of Commons in 1923 which had favoured recognition for bank workers.

(iv) *Federation.*

Occasionally after 1922 the Guild turned its attention to the possibility of federating with similar bodies. Its president advocated federation in 1923 and in 1924 the issue was debated. The executive of the Guild wanted to form a confederation with the Guild of Insurance Officials, the Scottish Bankers' Association and possibly the Stock Exchange Guild and the Shipping Guild. It recommended to the 1924 conference that this confederation should then join the National Federation of Professional Workers as a "non-manual, middle-class organization." A number of delegates expressed doubts. Would this mean that bank clerks would contribute financially to strikes? Some of the unions in the Federation had political funds and reputations for militancy. Should the Guild associate with such unions? The constitution of the National Federation of Professional Workers was considered to be questionable. One clause stated that it was an object of the Federation "to promote friendly relations between the federated organizations and the organizations representing the manual workers . . ." This involved too much for some clerks. Another clause aimed to assist professional workers to contribute to the democratic

<sup>1</sup>They were Sir C. Kinlock-Cooke (Conservative), Mr. L. Hore-Belisha (Liberal) and Mr. Arthur Greenwood (Labour).

control of their respective industries and services. But the Bank Officers' Guild, it was maintained, was not antagonistic to employers; it believed in co-operation with the British Bankers' Association. Despite these doubts, the executive's recommendation was accepted by the conference but nothing came of it. In 1925 the Guild executive was divided about what it should do. By 1926 it had resolved its doubts. It and the delegate conference of the Guild unanimously agreed to have nothing to do with the National Federation of Professional Workers. At the same time the Guild, to show how different it was from most other unions, rejected a motion for affiliation to the Trades Union Congress by 23,431 votes to 161.

During the General Strike the Guild offered to supply mediators because its members considered that they stood apart from the dispute. In reality they did not stand apart. Bank employers, like other employers gained strength from the collapse of the Strike. The Bank Officers' Guild found itself in a weaker and more vulnerable position than ever before. And as in the case of trade unions in general, the General Strike ended a phase for the Bank Officers' Guild. By 1927 the Guild had considered all the known industrial and political methods for gaining recognition. Those it had tried failed in their purpose. The enthusiasm which had marked its early years had been dissipated. Its membership, which had declined slowly since 1922, fell sharply in 1926 and 1927. In the five years after 1922 it lost almost one-third of its membership and slipped into a long period of relative stagnation.

#### CONCLUSION

The Bank Officers' Guild indirectly obtained benefits for bank clerks. Its propaganda drew attention to the deficiencies in the salaries and conditions of work in banks, and its presence impelled the bank employers to remedy some of them. But it failed to obtain direct benefits through negotiation because the bank employers steadfastly refused to recognise the Guild as a negotiating body. It failed, therefore, in a fundamental sense. The Guild could not operate fully as a trade union until it had established a working relationship with employers. Its failure was emphasized by the success of other non-manual groups.



Organizations of civil servants, railway clerks, some clerks in the iron and steel industry, and of bank clerks in other countries successfully claimed recognition from employers shortly after the First World War.

The bank clerks' failure to gain recognition, compared with the efforts of other non-manual groups, cannot be explained by differences in market conditions. The members of all these groups sold their labour in markets over which, as individuals, they exercised very little influence; and they encountered few possibilities of moving out of that situation. Nor can it be explained simply by reference to differences in social and work situations.<sup>1</sup> The explanation lies in the manner in which the bank employers made use of factors in these situations to counter trade unionism.

The bank clerks regarded themselves as the social élite of non-manual workers. This phenomenon of status differentiation was not confined to them or to non-manual workers in general; nor did it have any special significance by itself for trade unionism. There is not a straightforward connection between social status and attitudes to collective action. Some groups with relatively high social standing, for instance bank clerks and insurance officials, did not accept the methods of trade unionism, while others such as stationmasters and teachers did. Craftsmen had differentiated themselves from unskilled workers and from each other. In the nineteenth century they had practised trade unionism but had regarded unskilled workers as unfitted for it.<sup>2</sup> But status differentiation indicated a social attitude which could influence collective responses. In the case of the bank clerks this attitude assisted the employers.

The work situation consisted of such factors as skill, grading, promotion, size of office unit, degree and kind of contact between workers in the same and other occupations, and the relationship with employers. No particular type of work situation was associated with the spread of trade unionism.

<sup>1</sup>The differences in the extent of trade unionism among non-manual workers were explained in terms of work situation by Lockwood, *op. cit.*, p. 137 *et seq.*

<sup>2</sup>See *The Labour Aristocracy in 19th Century Britain* by E. J. Hobsbawm in *Democracy and the Labour Movement* edited by John Saville, p. 204 *et seq.*



There was no direct correlation between bureaucratic work situations and the use of collective action. Civil service employment was barely more regulated than that in the banks until after the civil service unions had gained general recognition in 1919.<sup>1</sup> Clerical employment in the sections of the iron and steel industry where the clerks' organisations were recognised was less regulated than bank employment; railway clerical and supervisory work, on the other hand, was subject to stringent regulation. There was no connection between the size of the office unit and the acceptance of trade unionism. The London civil service offices were large but the organized local government ones were frequently small and scattered; the workers in the large London bank offices were less organized than those in the dispersed and relatively small provincial branches.<sup>2</sup>

The behaviour of employers was, however, a relevant aspect of the work situation. The government was the employer of civil servants and a temporary war and post-war employer of railway clerks. It had accepted the report of the Whitley Committee in 1917 which recommended that joint industrial councils consisting of workers' and employers' representatives should be established in industry, but had refused to implement the recommendations in the case of its own non-manual employees. This had placed the government in an anomalous position. It was subjected to criticism and protests from politicians and civil service unions for discriminating between manual and non-manual workers and for failing to do what it advocated private employers should do. It was amenable to sustained pressure. It granted recognition to civil service unions in June, 1919. The Railway Clerks' Association had been granted a limited form of recognition by the government controlled Railway Executive in May, 1918—it was not given the right to negotiate for stationmasters, agents and supervisory clerks. The Association had refused to accept recognition on

<sup>1</sup>Civil service employment was reorganized and given precise functional grades between 1919 and 1924.

<sup>2</sup>There is a common misunderstanding about the effect of factory and large office organization upon trade unionism. It does not create trade unionists but makes union organization easier once workers have accepted the principle of collective action.

such terms and its members who belonged to the disputed grades were victimized. The railway companies, which operated under the control of the Railway Executive, sponsored the formation of sectional organizations, such as the National Federation of Stationmasters' Association. Then, in a determined attempt to gain recognition, the Railway Clerks' Association called a strike of the disputed grades for 6 p.m. on 4th February, 1919. The Cabinet at first supported the Railway Executive; then three hours before the strike was due to begin, disregarding the Railway Executive, it granted recognition to the Association.

The bank employers were in an anomalous position too because many of them were directors of industrial firms which had accorded recognition to trade unions. The anomaly did not worry them. Unlike the government, they were not amenable to public pressure; and they were determined to frustrate the growth of trade unionism in the banks.

British employers in general had not tried to circumvent trade unions through the creation of "company" unions or "internal associations" as American employers had done. They had openly opposed trade unionism; trade unionists had been victimized and union officials refused entry on to works' premises. In the odd cases, such as on the railways, where "company" unions had been fostered, direct opposition had also been used.

Different methods were used by the bank employers. They largely ignored the existence of the Bank Officers' Guild and did not openly victimize or intimidate bank clerks who were trade unionists. Instead they adopted what appeared to many bank clerks to be the reasonable course of creating internal associations. They acted quickly and uniformly before the Guild had had the time to establish itself. The smallness of the number of bank employers made possible some form of collusive opposition.

The bank employers made full use of the factors in the work and social situations which favoured the creation of internal associations. Indeed, without these factors their methods would most probably have been unsuccessful. They emphasized the distinctive qualities of banking and the

individual characteristics of banks to justify the repudiation of a single organization to represent all bank workers and representation by officials who were not employed by the banks. Many factors in the post-war situation contradicted this emphasis but there was one important one which did not. Clerks in the main banks were not able to move from one bank to another if they were dissatisfied and they knew that they could only make individual advancement within the bank which already employed them. The bank employers also attributed the pay concessions they made to the activities of the internal associations and laid stress on the economic advantages of bank employment. There was little evidence to support this emphasis until the end of 1920; then unemployment increased while bank employment remained secure and bank salary levels relatively stable. In the depression bank clerks saw little need for collective action.

The relevant factors in the social situation operated in the following manner. The officials of the Bank Officers' Guild believed that a militant policy would lose them rank-and-file support. Militancy did not necessarily involve strike action but it did imply a willingness to strike. It had been used effectively by manual workers' unions to overcome opposition from employers and sometimes it had been supported by non-unionists. There was no evidence to show that either the trait of irrationality among non-unionists or the willingness to strike was confined to manual workers. After the First World War school-teachers, stationmasters and civil servants either talked of striking or actually went on strike. So did bank clerks in Ireland, Scotland, South Africa, Australia and New Zealand. And in most cases militancy achieved its objective.

Perhaps, then, the Guild Officials had misinterpreted the ordinary bank clerks' attitude to strike action and had underestimated the self-charging, explosive nature of emotion in collective action. In the main, however, militancy had occurred in response to a provocative or obviously unreasonable attitude by employers and bank employers had not behaved in this manner. If the bank employers had offended the sentiments of their employees during 1919 and 1920 when the Guild's membership was growing fast to an extent unknown to the

employers and when the internal associations were not fully established, a strike might have occurred. An indication of their possible behaviour was provided by the activities of insurance officials in 1920. Insurance officials came from the same social stratum as bank clerks and worked under comparable conditions. And they too were struggling to form a trade union, the Guild of Insurance Officials. In 1920 an insurance company dismissed some of its employees because of their union activities and a strike was called on 8th November, 1920, after a ballot of the Guild's membership throughout the country had shown a majority was in favour of it.<sup>1</sup>

The promptness with which the bank employers established internal associations; the apparent reasonableness of their action and the extent to which it accorded with significant elements in the work and social situations of bank clerks made strong counter-action by the Bank Officers' Guild a necessary means of obtaining recognition. They also made it more difficult to attain. Bank clerks had barely been introduced to trade unionism before they were presented with an alternative which the majority considered to be adequate and more appropriate.

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<sup>1</sup>The strike occurred at the head of the General Accident Assurance Corporation, located at Perth. The Guild of Insurance Officials had about 20,000 members; of these 13,000 participated in the ballot and more than 10,000 were in favour of strike action. The Corporation had 529 employees of which 325 belonged to the Guild. 150 insurance officials went on strike and were dismissed. All the strikers were given employment by other insurance companies. (See *The Insurance Guild Journal*, October, November and December, 1920).









